

NAVAL POSTGRADUATE SCHOOL

Monterey, California



THESIS

ANALYSIS OF THE ONGOING PROCESS FOR PRIVATIZING UTILITY SYSTEMS IN THE NAVY

by

Marcus J. Cromartie

June 2000

Thesis Advisor:
Associate Advisor:

Donald R. Eaton
Keith F. Snider

Approved for public release; distribution is unlimited.

THIS QUARTER EXTENDED 4

20000823 050

REPORT DOCUMENTATION PAGE			<i>Form Approved</i> <i>OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE June 2000	3. REPORT TYPE AND DATES COVERED Master's Thesis	
TITLE AND SUBTITLE : Analysis Of The Ongoing Process For Privtizing Utility Systems In The Navy			5. FUNDING NUMBERS	
6. AUTHOR(S) Marcus J. Cromartie, Commander, U.S. Navy				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement			12b. DISTRIBUTION CODE	
13. ABSTRACT (maximum 200 words) <p>In December 1997, the Deputy Secretary of Defense issued Defense Reform Initiative Directive #9 directing the Military Departments to develop a plan for privatizing all utility systems except those needed for unique security reasons or when privatization is uneconomical. The utilities privatization program is designed to get DoD out of the business of owning, operating and maintaining utility systems.</p> <p>DoD consumes 70 percent of all the energy consumed by the federal government. This costs DoD nearly \$6-billion a year, with \$2.4-billion of that in infrastructure maintenance. Privatization of DoD utility systems can generate an estimated savings of \$327-million annually in reduced infrastructure costs. These savings can be reallocated to DoD's core competencies: warfighting and warfighting support.</p> <p>This thesis analyzed two case studies to help identify emerging problems facing utilities privatization in the Navy and determine their impact to the ongoing implementation process. Three major problems were identified: (1) variance in determination of Fair Market Value, (2) variance in economic analyses, and (3) applicability of State Utility Commissions' authority over utility systems located on DoD installations. The thesis concluded by making recommendations intended to improve the process for privatizing utility systems in the Navy.</p>				
14. SUBJECT TERMS Utilities Privatization, Privatizing Utility Systems			15. NUMBER OF PAGES 94	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UL	

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release; distribution is unlimited.

**ANALYSIS OF THE ONGOING PROCESS FOR
PRIVATIZING UTILITY SYSTEMS IN THE NAVY**

Marcus J. Cromartie
Commander, United States Navy
B.S., University of Maryland, 1982
M.B.A., University of West Florida, 1991

Submitted in partial fulfillment of the
requirements for the degree of

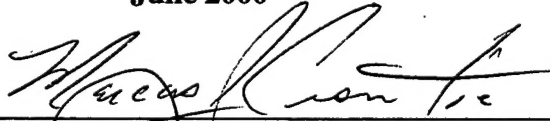
MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL

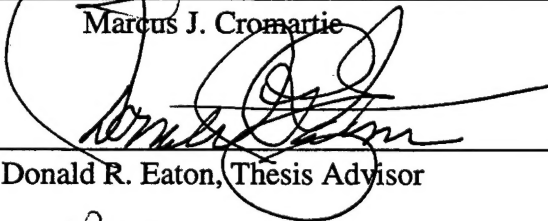
June 2000

Author:



Marcus J. Cromartie

Approved by:



Donald R. Eaton, Thesis Advisor



Keith F. Snider, Associate Advisor



Reuben T. Harris, Chairman
Department of Systems Management

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

In December 1997, the Deputy Secretary of Defense issued Defense Reform Initiative Directive #9 directing the Military Departments to develop a plan for privatizing all utility systems except those needed for unique security reasons or when privatization is uneconomical. The utilities privatization program is designed to get DoD out of the business of owning, operating and maintaining utility systems.

DoD consumes 70 percent of all the energy consumed by the federal government. This costs DoD nearly \$6-billion a year, with \$2.4-billion of that in infrastructure maintenance. Privatization of DoD utility systems can generate an estimated savings of \$327-million annually in reduced infrastructure costs. These savings can be reallocated to DoD's core competencies: warfighting and warfighting support.

This thesis analyzed two case studies to help identify emerging problems facing utilities privatization in the Navy and determine their impact to the ongoing implementation process. Three major problems were identified: (1) variance in determination of Fair Market Value, (2) variance in economic analyses, and (3) applicability of State Utility Commissions' authority over utility systems located on DoD installations. The thesis concluded by making recommendations intended to improve the process for privatizing utility systems in the Navy.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND.....	1
B.	PURPOSE.....	2
C.	SCOPE.....	2
D.	METHODOLOGY.....	3
E.	RESEARCH QUESTIONS.....	4
1.	Primary.....	4
2.	Supporting Question 1.....	4
3.	Supporting Question 2.....	4
F.	ORGANIZATION OF STUDY.....	4
II.	UTILITIES PRIVATIZATION IN THE NAVY.....	5
A.	INTRODUCTION.....	5
B.	BACKGROUND.....	5
C.	DEFENSE REFORM INITIATIVE.....	6
1.	Purpose.....	6
2.	Scope.....	7
3.	Exemptions.....	8
D.	LEGISLATIVE GUIDANCE.....	8
1.	Title 10 USC 2688, Utility Systems: Conveyance Authority.....	8
2.	State Laws and Regulations.....	9
E.	DEPARTMENT OF NAVY UTILITY SYSTEM PRIVATIZATION PLAN.....	10
1.	General.....	10
2.	Policy.....	10
3.	Essential Considerations in the Plan.....	10
4.	Process.....	10
F.	SUMMARY.....	14
III.	UTILITIES PRIVATIZATION CASE STUDIES.....	15
A.	INTRODUCTION.....	15
B.	NORFOLK NAVY SHIPYARD POWER PLANT.....	16
1.	NNSY Power Plant Description.....	17
2.	NNSY Power Plant Operations.....	19
3.	Regulated Utilities in Virginia.....	21
4.	Reliability.....	22
5.	Life Cycle Costs.....	23
6.	Conclusion.....	26
C.	HAMPTON ROADS ELECTRICAL DISTRIBUTION SYSTEM.....	28
1.	Description of the Hampton Roads Electrical Distribution System.....	29
2.	Hampton Roads Electrical Distribution System Operations.....	30
3.	Regulated Utilities in Virginia.....	30
4.	Hampton Roads Electrical Distribution System Life Cycle Costs.....	31
5.	Proposed Level of Service.....	33

6.	Sensitivity Analysis	33
7.	Independent Review of Findings.....	34
8.	Conclusion	34
D.	SUMMARY.....	35
IV.	ANALYSIS OF THE ONGOING PROCESS FOR PRIVATIZING UTILITIES.....	37
A.	METHODOLOGY OF ANALYSIS.....	37
B.	RADICAL CHANGE BY ENTREPRENEURIAL DESIGN	37
1.	Innovative Process.....	37
2.	Process Participants.....	39
3.	Relationship Between Entrepreneurship and Innovation.....	40
C.	BACKGROUND OF UTILITIES PRIVATIZATION IN DOD	40
D.	CREATION OF THE IDEA TO PRIVATIZE DOD UTILITY SYSTEMS	41
1.	Established Need for Utilities Privatization in DoD.....	41
2.	Participants in the Creation of Utilities Privatization in DoD	43
E.	DESIGNING THE PROCESS FOR PRIVATIZING DOD UTILITIES.....	44
F.	PRIVATIZATION OF UTILITIES IMPLEMENTATION.....	46
G.	INSTITUTIONALIZATION OF PRIVATIZATION OF UTILITIES	50
1.	Variance in Determination for Fair Market Value.....	51
2.	Variance in Economic Analysis	51
3.	State Utility Commissions' Authority	53
H.	CONCLUSION.....	55
V.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.....	57
A.	SUMMARY.....	57
B.	CONCLUSIONS AND RECOMMENDATIONS	58
1.	Conclusions.....	59
2.	Recommendations	61
3.	Areas for Further Research.....	63
	APPENDIX A. DEFENSE REFORM INITIATIVE DIRECTIVE #9.....	65
	APPENDIX B. DEFENSE REFORM INITIATIVE DIRECTIVE #49.....	67
	LIST OF REFERENCES	75
	INITIAL DISTRIBUTION LIST	79

LIST OF FIGURES

Figure 2.1 Department of Navy Utility System Privatization Plan	12
Figure 3.1 RDF Power Plant Design Specifications	18
Figure 3.2 O&M Contract Provisions.....	19
Figure 3.3 Fuels Contract Provisions.....	20
Figure 3.4 RDF Plant Steam Production	21
Figure 3.5 RDF Power Plant Electrical Power Production	21
Figure 3.6 Strategic Options Involving Divestiture	24
Figure 3.7 Strategic Options Net Present Value	26
Figure 3.8 Statutory Requirements of 10 USC 2688	31
Figure 3.9 Life-Cycle Costs – Government Owned Facility.....	32
Figure 3.10 Life-Cycle Costs – Private Owned Facility	32
Figure 3.11 LANTDIV Findings.....	34

LIST OF TABLES

Table 3.1 RDF Power Plant Forecasted Revenues and Expenses.....	25
---	----

I. INTRODUCTION

A. BACKGROUND

In this era of declining budgets, the Navy must make tough choices in order to maintain the current capabilities of the fleet and sustain a modernization program that will meet the operational needs of the twenty-first century. One way to meet this challenge is to fund acquisitions with savings generated from reduced operating costs associated with maintaining the existing infrastructure. Savings generated from reduced infrastructure costs allow for reallocation of scarce manpower and financial resources to the functions that are most critical to the Department of Defense (DoD) core competencies: warfighting and warfighting support.

DoD energy costs exceed six billion dollars each year. One third of this amount is spent on infrastructure maintenance alone. In the Navy, nearly thirty percent of shore installations operating budgets are apportioned to fund energy requirements. Reducing the costs that these shore installations incur delivering energy to end-users can generate significant savings. These savings can in turn be directed to procurement shortfalls and fleet modernization projects.

The Navy's core mission is to deter threats to national security and apply military force when deterrence is not successful. Navy leadership has determined that the maintenance and management of the utility infrastructure is not within the Navy's core mission. The Navy could focus more on its core mission and less on support functions if it privatized all its utility systems. The Navy could get out of the business of operating utility systems and turn that responsibility over to private sector professionals who are

specifically organized, staffed, financed and equipped to provide a better level of safe, reliable and environmentally compliant energy service.

On 10 December 1997, Deputy Secretary Of Defense signed Defense Reform Initiative Directive (DRID) 9, which mandated that every branch of the armed forces initiate privatization of all utility systems by January 1, 2000, except those needed for unique security reasons or when privatization is determined to be uneconomical. On 23 December 1998, DRID 49 was published, which extended the completion date for the transfer of ownership of all military utility systems, including electric, natural gas, water and wastewater facilities, to private entities by September 2005. The Navy has 973 utility systems available for privatization. As of December 1999, the Navy had awarded privatization contracts for two systems under the provisions of DRID 49. (NUPR, April 2000)

B. PURPOSE

This thesis will analyze the process of privatizing utilities on Navy shore installations and identify planning, assessment and implementation challenges the program faces. The goal of this thesis is to increase knowledge and understanding of the utilities privatization initiative, which requires the Navy to convey control and ownership of all utility systems to the private sector by September 2005.

C. SCOPE

The scope of this thesis will be limited to an analysis of the ongoing process for privatizing utility systems in the Navy and an examination of the feasibility studies conducted at two Navy shore installations. This study will focus on the following challenges and problems associated with utilities privatization: implementation,

economic analysis, and federal and state legislative compliance. Because the privatization initiative is ongoing, there are few final solutions available. Therefore, this study is exploratory to reveal emerging problems. This thesis will conclude with recommendations intended to improve the process for privatizing utility systems in the Navy.

D. METHODOLOGY

This thesis analyzes the process for privatizing utility systems in the Navy. The methodology used in this thesis research consists of the following steps:

- A literature review of books, articles, CD-ROM systems, and other archival documents pertaining to privatization of utilities in DoD and theory on the process for implementing radical change.
- Semi-structured telephonic interviews of 15 key personnel.
 - Experts and managers from Army, Navy and Marine Corps commands involved in ongoing utilities privatization projects throughout the continental U.S. (CONUS).
 - Interviews conducted to identify lessons learned, common themes and problems to add insight to overall analysis.
- Analysis of two major Navy privatization studies including lessons learned.
- Report of findings and recommendations with intent to improve the process for privatizing utility systems in the Navy.

E. RESEARCH QUESTIONS

1. Primary Question

What are the major issues, problems, challenges and lessons learned concerning ongoing implementation of the DoD directive that requires privatization of all utility systems by September 2005?

2. Supporting Question 1

What directives and guidelines have been issued by higher authority to assist Navy shore installations privatize their utility systems?

3. Supporting Question 2

What are the major challenges facing utilities privatization in DoD and what are their sources?

F. ORGANIZATION OF STUDY

This thesis is divided into five chapters, including the introduction. Chapter II provides a review of the governing doctrines and legislative authority for utilities privatization in DoD, with emphasis on privatization of utilities in the Department of Navy (DoN). Chapter III presents two case studies that will help identify emerging problems and challenges facing utilities privatization. Chapter IV presents the findings and analysis from this thesis. Chapter V provides a brief summary, conclusions and recommendations from this study.

II. UTILITIES PRIVATIZATION IN THE NAVY

A. INTRODUCTION

This chapter will review the directives that govern the privatization of utilities in DoD and the legislative statutes that grant authority to convey ownership of government owned utility systems to public or private sector entities. Special emphasis will be placed on documents germane to privatizing utility systems located on Navy shore installations.

B. BACKGROUND

Privatization of an activity is characterized by a shift from public to private capital for the fundamental, long-term financial investment required to sustain the activity. Utilities privatization in the DoD involves the total divestiture of utility systems and associated activities from military installations to the private sector. Any savings generated from reduced infrastructure costs allow DoD to reallocate scarce manpower and financial resources to the functions that are most critical to DoD core competencies: warfighting and warfighting support.

In December 1997, the Deputy Secretary DRID 9 directing the Military Departments to develop a plan for privatizing all utility systems by January 1, 2000, except those needed for unique security reasons or when privatization is uneconomical. Following DRID 9's issuance, there was a significant increase in the number of utility systems available for consideration, from 700 systems to 2300, as well as an increase in the complexity of issues surrounding privatization of utilities (CRS, 1999). As a result, DRID 49 was issued on 23 December 1998, which revised original compliance dates and established more detailed guidance governing the process for privatizing DoD utility systems.

In order to implement the DRIDs and get DoD completely out of the business of owning, operating and maintaining utility systems, Congressional legislation was required. Accordingly, Congress enacted legislation in November 1997 as a part of the National Defense Authorization Act for fiscal year 1998 that granted DoD authority to convey ownership of all utility systems to private or public entities; as long as conveyance was economically beneficial to DoD and did not pose a security risk. All Military Departments were subsequently directed to develop and submit implementation plans to DoD that met the requirements established by the DRIDs.

C. DEFENSE REFORM INITIATIVE DIRECTIVES

1. Purpose

Defense Reform Initiative Directive 9 directed each Military Department to develop plans for privatizing electric, natural gas, water and wastewater utility systems, except where privatization is uneconomical or where unique security reasons require DoD ownership. The initiative also required the Under Secretary of Defense for Acquisition and Technology (USD (A&T)) to develop uniform criteria for the Military Departments to apply in determining security and economic exemptions. Following issuance of DRID 9, the number of utility systems available for consideration and the complexity of issues surrounding transactions multiplied, creating a need for more guidance. As a result, DRID 49 was issued which revised original dates and milestones, requiring the award of privatization contracts for all applicable utility systems no later than 30 September 2003. The objective was to get DoD out of the business of owning, managing, and operating utility systems and turn that responsibility over to private sector

professionals who were specifically organized, trained and staffed. Key aspects of DRID 49 are identified in the next two sections of this chapter.

2. Scope

a. Definition

A utility system is defined as any system for the generation and supply of electric power, for the treatment or supply of water, for the collection or treatment of wastewater, and for the supply of natural gas. For the purposes of this definition, supply shall include distribution. A utility system includes equipment, fixtures, structures and other improvements, as well as associated easements and right-of-ways.

b. Authority

Military Departments are authorized to convey utility systems to any municipal, private, regional, or cooperative utility company or any other entity in accordance with state and local laws. Appropriate agreements and applicable host nation laws will apply to privatization of overseas utility systems.

c. Range

The privatization of utilities is to be conducted at all DoD installations that have utility systems available to convey. All utility systems located on Active Duty, Reserve and Guard Installations, both major and minor, not currently designated for closure under Base Realignment and Closure (BRAC) Act will be considered candidates for privatization.

3. Exemptions

a. Unique Security Reasons

A utility system is exempt from privatization when either the Secretary concerned or the Principal Staff Assistant for a Defense Agency certifies to USD(A&T) that unique security reasons require the United States own the system. Unique security reasons are situations in which ownership by a private entity would substantially impair the mission of the Department concerned or compromise classified operations or property.

b. Privatization is Uneconomical

A utility system is exempt from privatization when either the Secretary concerned or the Principal Staff Assistant for a Defense Agency certifies to the USD(A&T) that privatization is uneconomical. Privatization may be considered uneconomical only when there is a lack of market interest, the long-term cost to DoD would be greater than the long-term benefits, or the long-term cost for utility service would not be reduced.

D. LEGISLATIVE GUIDANCE

1. Title 10 USC 2688, Utility Systems: Conveyance Authority

Section 2688 of Title 10, United States Code (USC), provides the Secretary of the Navy (SECNAV) authority to convey all utility systems, including electric, natural gas, water and wastewater, as well as steam, hot and chilled water, and telecommunications systems. It requires SECNAV to submit to the Defense Committees of Congress an analysis that demonstrates that the long-term economic benefit of the utility system conveyance exceeds the long-term economic cost, and that the conveyance will reduce

the long-term costs to the DoN for utility service. SECNAV may not proceed with utility system conveyance until 21 days have elapsed after congressional committees receive the economic analysis.

The conveyance should be accomplished using competitive procedures if more than one entity express interest. SECNAV shall determine a fair market value for the system to be conveyed and may accept lump sum payment or a reduction in charges for utility services provided as consideration. Utility service contracts related to the conveyance of a utility system may not exceed 50 years (PL 106-65). If a lump sum payment is proposed by an entity, SECNAV shall credit the amount to an appropriation available for one of the following: the procurement of the same system, carrying out an energy savings program or improving other utility systems.

2. State Laws and Regulations

States may not regulate the federal government in any respect without an unequivocal waiver of sovereign immunity by Congress. There has been no such waiver with respect to utilities privatization, except for the acquisition of electric utility service by a federal agency. A state may not regulate the conveyance of any utility system nor regulate the Navy's acquisition of utility services, as related to an on-base utility system, except electric. Many states regulate the utility industry and establish utility franchise and territorial agreements that prohibit out of state entities from competing for the right to privatize a federal utility system. Without congressional waiver of sovereign immunity, these regulations do not apply. (DoD (GC), 2000)

E. DEPARTMENT OF NAVY UTILITY SYSTEM PRIVATIZATION PLAN

1. General

The following is a summary of the DoN utility system privatization plan (NUPP). It provides a blueprint for actions needed to privatize utility systems onboard DoN shore installations. The plan is applicable to all 973 Navy and Marine Corps utility systems (electric, natural gas, water and wastewater).

2. Policy

Department of Navy missions require safe, reliable, modern and economical utility services. The goal is to reduce infrastructure costs. Privatization of utility systems is an important tool to achieve these cost savings while providing quality utility services. Therefore, utility systems should be privatized wherever it is economically advantageous to do so. (DASN (I&F), 1998)

3. Essential Considerations in the Plan

According to NUPP, the following are key elements to the Navy utility system privatization plan:

- Ensure competition is promoted to the maximum extent possible,
- Eliminate “non-starters” upfront by determining market interest early in the process,
- Use market input to determine the fair market value of systems, and
- Allow the market to propose innovative business cases to include systems aggregation and expansion beyond installation boundaries.

4. Process

The DoN Utility System Privatization Plan is based upon the concept that industry is best suited to determine the fair market value of a DoN utility system and the economic opportunity provided by ownership. The Naval Facilities Engineering Command

(NAVFAC) Engineering Field Divisions (EFDs) are responsible for implementing the details of NUPP. Installation Commanders are responsible for determining if privatization will proceed, based upon the Office of the Secretary of Defense (OSD) and DoN policy, guidance and criteria. NUPP includes five phases, as identified in Figure 2.1.

The privatization process begins with a screening of utility systems to identify privatization candidates. A security assessment is conducted to identify unique security requirements that would exempt a utility system from privatization. A review of federal, state and local regulations assesses the regulatory impact on both the privatization process and the potential transfer of ownership to the private sector. The NAVFAC EFDs provide the private sector with annual operating cost data and a brief description of each utility system to aid the determination of market interest. The private sector assumes responsibility for determining the economic opportunity of privatizing any specific utility system. If no interest is expressed, a system is considered not economical to privatize.

The next phase of the utilities privatization process begins with the drafting, and subsequent issuance, of a Request For Proposal (RFP). The RFP will include the estimated economic value of a given utility infrastructure, which bidders may choose to use or replace in their proposals. Simultaneous with the development of the RFP, an Environmental Baseline Study (EBS) is conducted to assess the environmental condition of the land surrounding property to be conveyed. A notice of intent will be prepared and published in the *Commerce Business Daily*, and any other available public media, to advertise to as many potential bidders as feasibly possible. Once qualified

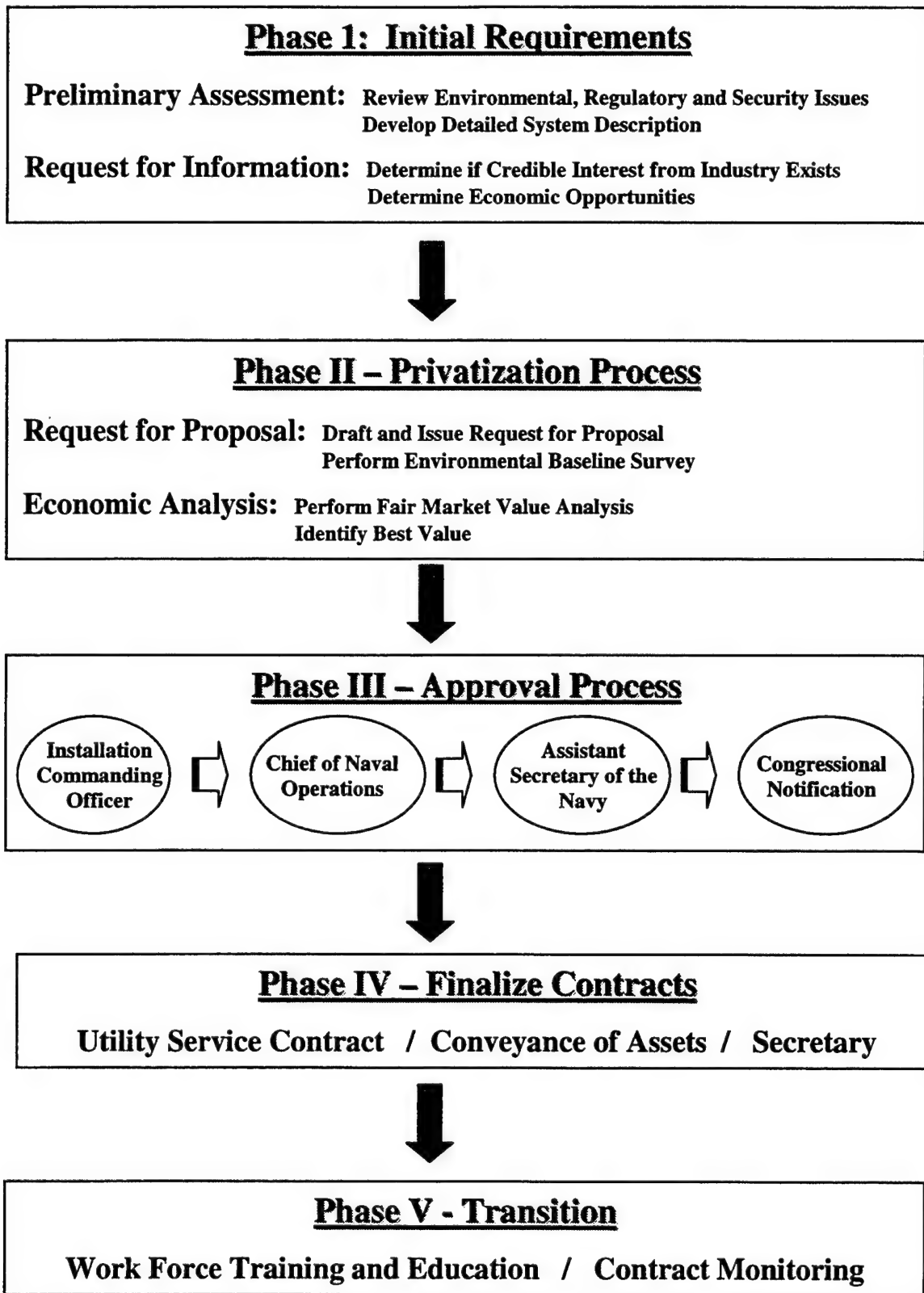


Figure 2.1 Department of Navy Utility System Privatization Plan

firms are identified, cost and technical proposals will be requested and evaluated upon receipt. The offer providing the best value to DoN should be selected. Full and open competition among all interested parties will facilitate the selection of the proposal that provides DoN the best value.

Once the offer providing DoN the best value has been identified, the approval process begins. The Installation Commanding Officer (CO) forwards his recommendation via the Chief of Naval Operations (CNO) to the Deputy Assistant of the Navy for Installations and Facilities (DASN (I&F)), who has approval authority for SECNAV. SECNAV submits Congressional Notification as described in Title 10, USC Section 2688. The notification of intent to privatize includes an economic analysis that takes into account the cost of operation, maintenance and system improvements that would be incurred by DoN if the utility system were operated and maintained in accordance with conventional industry practice and all germane legal and regulatory requirements. The economic analysis must include all costs that *should* be incurred if a utility system was operated and maintained in accordance with all applicable legal and regulatory requirements. SECNAV may not proceed with conveyance of a utility system until 21 days have elapsed after congressional committees receive the notification of intent.

Once SECNAV has approved privatization, the next phase involves the transfer of property from DoD to the private sector and the execution of a utility service contract between the installation and the utility service provider. Utility system conveyance includes the signing of all documents required for the execution of easements needed for unhindered access to the property involved in the transaction. The utilities privatization

process concludes with the transition phase, in which the Installation Commander should designate personnel to monitor contract performance and compliance. This should continue for the life of the contract.

F. SUMMARY

This chapter provided a review of documents germane to utilities privatization in DoD. Special emphasis was placed on policy directives, legislative authority, and background information pertaining to the privatization of utility systems located on Navy shore installations. The intent of this chapter was to increase the reader's knowledge and understanding of the directives governing the privatization of utilities in the Navy.

III. UTILITIES PRIVATIZATION CASE STUDIES

A. INTRODUCTION

Defense Reform Initiative Directive 49 mandates DoD to transfer ownership of all military utility systems to private entities by September 2005. Only those systems needed for unique security reasons or when privatization is determined to be uneconomical are exempt from privatization. As of December 1999, DoN had awarded privatization contracts for two systems out the 973 systems available for privatization. The two cases selected for analysis in this study will help identify emerging challenges facing utility privatization.

The first case study involves the Norfolk Navy Shipyard (NNSY) Refuse Derived Fuel Power Plant, which is the first utility system to privatize under the guidelines of the Defense Reform Initiative (DRI). The privatization of this power plant was considered a success by many involved in the privatization process, but emerging problems have negatively affected NNSY's ability to perform its assigned mission.

The second case study involves the Hampton Roads Electrical Distribution System, which is the first large-scale aggregate system in the Navy to request economic exemption under the guidelines of DRID 49. Despite an economic analysis that clearly supported economic exemption status, the exemption request was denied by DASN (I&F). DASN (I&F) stated in the disapproval memorandum that the economic analysis was considered exemplary and, in large part, will be adopted as the model for future utility privatization analyses in DoD. Notwithstanding, DASN (I&F) directed Public Works Center Norfolk (PWC) to proceed with privatizing the Hampton Roads utility system using competitive procedures.

B. NORFOLK NAVY SHIPYARD POWER PLANT

The Norfolk Naval Shipyard Refuse Derived Fuel Power Plant was the first DoN utility system to privatize under the guidelines of the Defense Reform Initiative issued by the Secretary of Defense. The RDF power plant generates steam and electric power for the Norfolk Navy Shipyard (NNSY). It is fueled with Refuse Derived Fuel (RDF), a processed municipal waste, purchased from the Southeastern Public Service Authority (SPSA), a regional non-profit municipal waste authority serving southeastern Virginia. NNSY is a certified Nuclear Capable Shipyard and reliable steam and electrical service are critical to its operations.

Beginning in 1990, NNSY power plant operations were outsourced to SPSA. SPSA was contracted to provide operations and maintenance (O&M) for the RDF facility, but DoN retained ownership of all plant and equipment. SPSA was also contracted to provide the processed municipal waste that fueled the power plant under a separate 30-year fuel service agreement due to expire in 2018. To facilitate privatization of the RDF power plant, the O&M contract was terminated at no cost to the Navy and the fuel purchase contract was modified in 1999.

In anticipation of utilities privatization, DoN hired KPMG Consulting (KPMG) in 1996 to develop a business case analysis to help identify and evaluate long-range strategic options for the NNSY RDF power plant. In the final report issued in February 1997, KPMG recommended transfer of the power plant to SPSA, including all operational responsibilities. Authority to transfer the NNSY RDF power plant to SPSA was granted with the enactment of 10 USC 2688. Following the guidelines of DRID 49,

PWC transferred ownership of the RDF power plant to SPSA in July 1999. The information contained in the KPMG study forms the basis for this case study.

1. NNSY Power Plant Description

In 1979, the Navy partnered with SPSA to build a power plant capable of burning refuse derived fuel. The agreement called for DoN to construct a power plant adjacent to a SPSA owned and operated RDF processing facility. The processing facility would convert trash from the Tidewater Virginia area into processed fuel, which the Navy would purchase as the primary energy source for the power plant.

The terms of the agreement included language that required SPSA to pay for all additional costs incurred by the Navy to build a plant capable of burning RDF and coal. These *Additional Capital Costs* (ACC) consist of costs in excess of what the Navy would have incurred to build a power plant fueled by coal only. These ACC amounted to \$14.3 million, which were amortized at 13.21% over the term for the contract. Operations and Maintenance (O&M) payments would be reduced by the monthly ACC amount. Similarly, SPSA would pay for all *Additional O&M Costs*, which consist of any increase in maintenance above what would be required in a coal-fired plant.

The NNSY power plant was built in 1988 at a cost of \$107 million. The power plant and adjoining processing facility were constructed on Navy property. SPSA leased the land from the Navy, at no cost, under a separate contract.

The NNSY power plant began generating electrical power in 1989. The power plant generates enough energy to satisfy all steam requirements and most electrical requirements for NNSY and its tenants. RDF is placed in one of four 180,000 pounds per hour (PPH) traveling-grate, spreader-stoker boilers that operate at 750 degrees and 700

PSIG. Steam generated from the boilers is distributed throughout the shipyard via a series of connecting pipes. The steam generated by the plant satisfies the steam demand for all ships, industrial processes, heating and hot water at NNSY. Residual steam is extracted and pumped into one of three turbines that generate electricity for shipyard use. Excess electricity is sold to Virginia Power, the regulated provider of electrical power for the territory surrounding NNSY. Whenever the turbine generators cannot produce enough electrical power to satisfy NNSY demand, supplemental power is purchased from Virginia Power.

<u>RDF Power Plant Design Specifications</u>	
Date Built	1988
Cost	\$107,000,000
Boilers	4 traveling grate spreader stoker boilers 180,000 lbs/hr Combustion Engineering Model UV40
Steam Turbines	3-20 MW extracting, 16 MW non-extracting HP turbines
Design RDF Capability	1500 tons/day (3 boilers and 2 turbines)
Steam Outlet	700PSIG at 750 degrees Fahrenheit
Fuel	RDF, low sulfur clinker coal, #2 fuel oil
RDF Processing Plant Flow	120 tons/hr
RDF Storage Pit	2000 tons
Plant Cooling Capacity	287 MBTU/hr 32 MW non-extracting
Coolant Pumps	6 at 11,000 GPM
Cooling Cells	4 at 10,250 GPM design
Nominal Max Sustained Output	44MW
Max RDF/hr Burn Rate	96 tons/hr 2312 tons/day 843,000 tons/year
Max Electrical Output	45 MW (ground fault limitation)
Voltage	12 KV

Figure 3.1 RDF Power Plant Design Specifications

Source: KPMG Study

Steam and electricity are disseminated throughout NNSY by a distribution network that is owned and operated by Public Works Center Norfolk (PWC), a Navy

Working Capital Fund activity. The distribution system is not subject to privatization with the RDF plant. It is considered a separate entity from the RDF power plant.

2. NNSY Power Plant Operations

NNSY operated the RDF power plant since its initial startup, until SPSA was contracted to take over operation and maintenance of the facility in 1990 under an O&M Contract. The contract was a cost reimbursable (no fee) type contract for five years with annual options. It outsourced complete operation and maintenance of the facility with annual costs approximating \$10 million. PWC administered the contract and was responsible for contractor performance and payments. Contract provisions are listed in Figure 3.2.

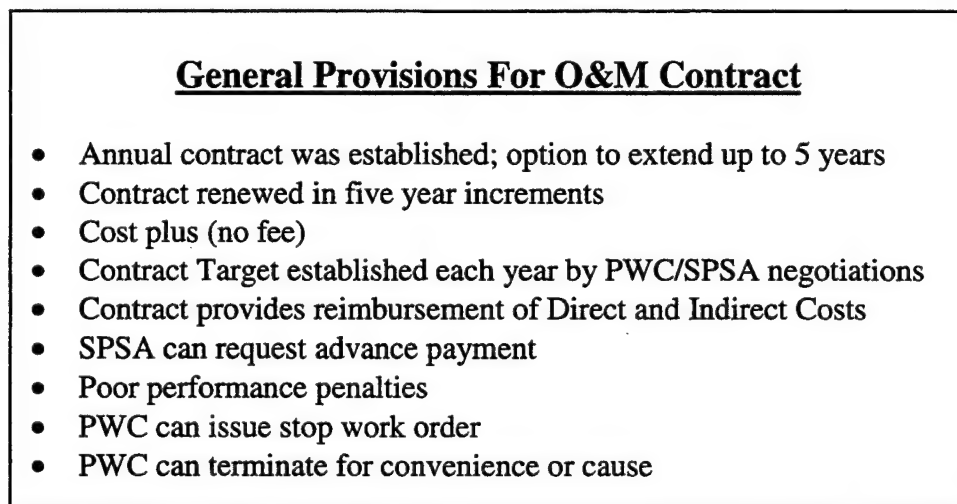


Figure 3.2 O&M Contract Provisions

Source: KPMG Study

SPSA was contracted to provide processed municipal waste to fuel the RDF power plant through a separate 30-year fuel service agreement. The intent of the contract was for SPSA to provide a continuous and reliable supply of RDF to NNSY at an economical cost. The general provisions of the RDF fuel contract are listed in Figure 3.3.

General Provisions of the RDF Fuels Contract

- The period of contract is 30 years (1988-2018)
- Minimum RDF purchase by Navy is 25,000 tons per month
- Either party can terminate for convenience; significant costs implications
 - Navy must provide 24-month notice
 - Navy must pay off SPSA debt liability
 - Navy is responsible for minimum fuels payment
 - Navy payments to be credited against outstanding bonds
- PWC purchases fuel based on three tiered rate structure
- SPSA disposes of all RDF ash, at their expense

Figure 3.3 Fuels Contract Provisions

Source: KPMG Study

Between the years 1993-1996, the RDF power plant produced over 900,000 MBTU of steam annually, which generally met the steam demands for NNSY. At this rate, average monthly consumption by NNSY cost almost \$1 million. However, it was expected that future demand for steam would decrease by approximately 18% due to technological advances in industrial processes and the construction of less expensive alternative methods for providing heating and hot water at NNSY. Greater savings were possible considering the fact that distribution system lost on average ten percent of steam production during each year from 1993 – 1996, as depicted in Figure 3.4.

Yearly demand for electrical power at NNSY averaged 240,000 MWH per year between 1993-1996, including 40,000 MWH per year required to sustain operations at the RDF power plant, see Figure 3.5. The RDF power plant only generated an average of 170,000 MWH of electricity each year, which PWC charged NNSY tenants 10 cents per KWH. Supplemental electrical power purchases of 70,000 MWH per year were required from Virginia Power at a rate of 10.5 cents per KWH. The annual costs of this supplemental power averaged \$3.5 million per year from 1993 - 1996.

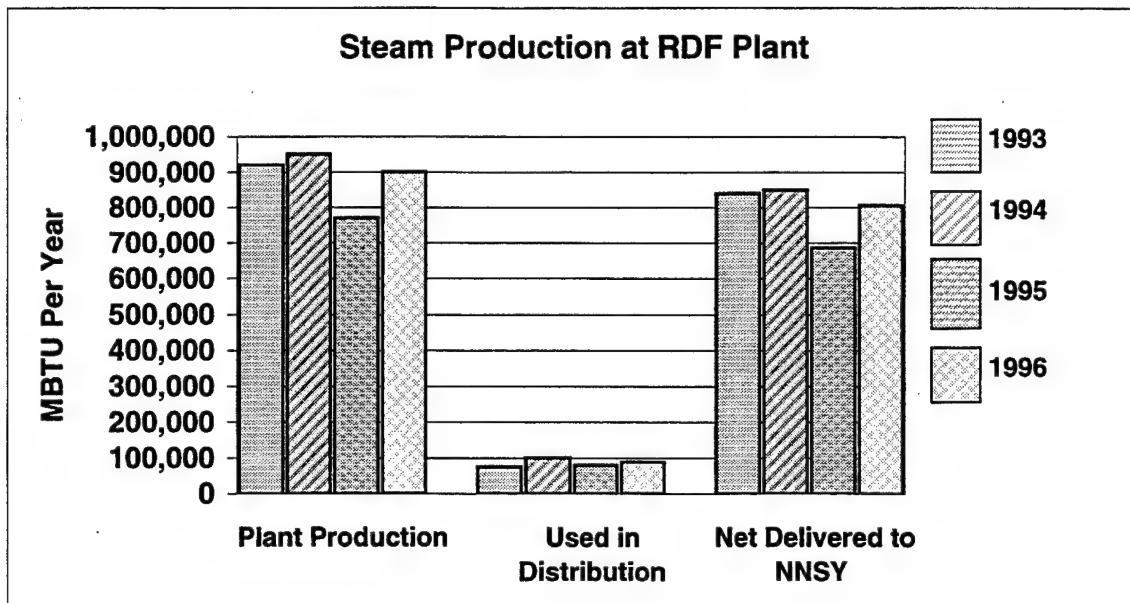


Figure 3.4 RDF Plant Steam Production

Source: KPMG Study

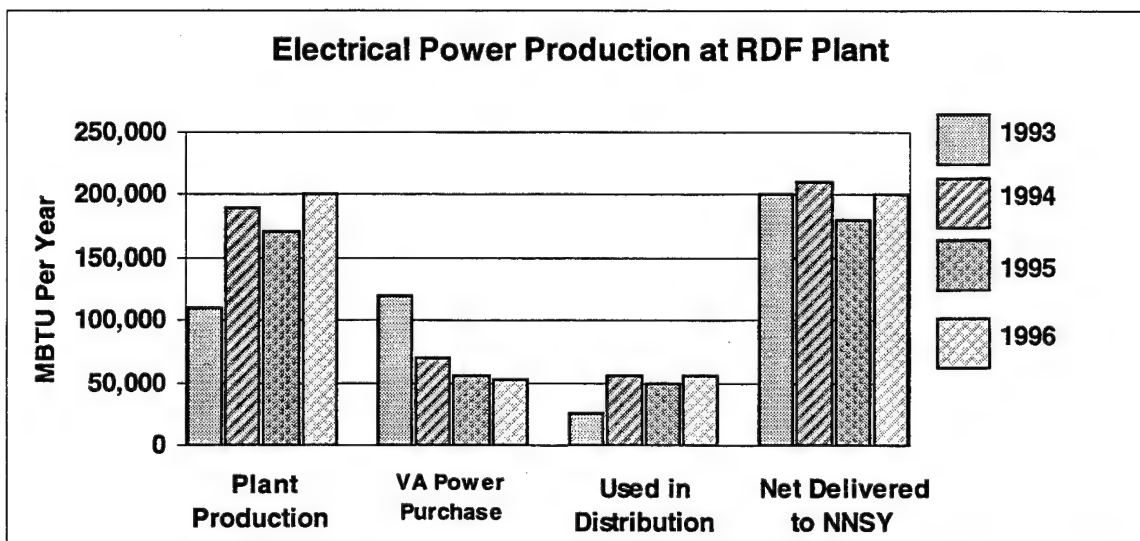


Figure 3.5 RDF Power Plant Electrical Power Production

Source: KPMG Study

3. Regulated Utilities in Virginia

The Commonwealth of Virginia State Regulatory Commission regulates commercial and residential utility customers in Virginia. The practice of states regulating the utility industry in the US resulted from the natural monopolistic characteristics caused

by limited competition; in the early 1900s, high fixed costs created a barrier for entry into the utility industry. Regulation provided a franchise territory in which there is only one supplier of retail electrical service. The franchised utility company is required to serve all customers within its territory at reasonable rates with provisions to earn a reasonable profit on investments. Electricity rates in Virginia are considered low compared to other states; therefore there is reluctance to abandon regulatory practices.

4. Reliability

Reliable steam and electrical service are critical to NNSY operations. It is generally accepted within the utility industry that multiple back-up sources for energy increase overall reliability. As a result of the redundancy built into the systems that provide NNSY with steam and electrical power, NNSY has experienced reliable steam and electric service throughout the shipyard.

Steam reliability is increased by the existence of a fourth boiler at the NNSY RDF power plant. Three boilers are sufficient to satisfy all the NNSY steam requirements. The fourth boiler provides a back-up steam source in event one of the three primary boilers malfunctions or is taken off-line for maintenance. Reliability is further increased by each boiler's ability to burn coal as an alternate fuel source; in event sufficient RDF is not available.

Electrical power reliability is increased by NNSY's ability to receive 100 percent of its demand for electricity from two separate sources: the RDF power plant and VA Power. Both sources are capable of providing enough electrical power to service the entire NNSY. Diesel generators provide additional back-up electrical power, as necessary.

5. Life Cycle Costs

A life cycle cost evaluation was conducted by KPMG to determine the cost savings associated with three different strategic options involving divestiture of the RDF power plant. The costs associated with continued government ownership of the power plant were used as the baseline for cost comparison purposes. The financial impact caused by obtaining steam and/or electrical power from alternative sources was included in computations for each strategic option as necessary. A net present value (NPV) analysis was conducted for each option to discount for the time value of money. The option offering the highest NPV was recommended by KPMG.

The fair market value (FMV) of the RFD power plant was \$90 million, based on appraised value. The FMV for the power plant did not factor heavily in the decision making process to privatize the facility, because the FMV would be recouped by NNSY in the form of reduced steam and electric rates over the life of the utility agreement with SPSA.

As mentioned previously, costs associated with PWC providing steam and electric services to NNSY would be used as a baseline for cost comparisons. The rate schedule that PWC uses to charge the NNSY and tenants for steam and electrical power is designed to recover production and distribution costs, including scheduled and unscheduled maintenance costs. Production costs include plant operating costs, Virginia Power import costs and PWC support costs. Distribution costs include all costs associated with distributing steam and electrical power throughout NNSY. Costs are further offset by revenue generated from the sale of excess electrical power generated at the RFD power plant, which Virginia Power purchases below market price.

KPMG identified three strategic options available to NNSY that involved divestiture of the RDF power plant. The three options are listed in Figure 3.6.

<u>Strategic Options Involving Divestiture</u>	
1. Plant Closure	Power plant is sold or leased; no energy is provided to NNSY by the plant. NNSY has to seek alternate sources of electricity and steam.
2. Transfer to SPSA	Power plant is transferred to SPSA; Navy purchases steam from SPSA and electricity from Virginia Power. SPSA provides O&M.
3. Privatization of O&M	Power plant is transferred to SPSA; SPSA hires a private vendor to provide O&M.

Figure 3.6 Strategic Options Involving Divestiture

Source: KPMG Study

Strategic option numbers 2 and 3 assume Virginia Power as the only alternative source for electrical power because of utility regulation in VA. Subsequent to the KPMG analysis, legislation was passed that allowed SPSA to sell electricity to NNSY at the same rates as Virginia Power. Strategic option number 3 also assumes that a private company could operate the RDF power plant more efficiently than SPSA, thus reducing costs by 10 percent.

Total costs and revenues for each strategic option for years 1997, 2000 and 2005 are listed in Table 3.1. Each strategic option assumes a different time-horizon for full implementation. By year 2005 all strategic options are fully implemented. Costs should remain constant thereafter, except for adjustments for inflation.

<u>Forecasted RDF Power Plant Revenues and Expenses</u>			
(in million dollars)			
	<i>FY 97</i>	<i>FY 00</i>	<i>FY 05</i>
<i>Continued Government Ownership</i>			
Revenue	24.0	21.9	22.2
Expenses	<u>27.7</u>	<u>27.6</u>	<u>27.7</u>
Surplus/Deficit	(3.7)	(5.7)	(5.5)
<i>Closure of RDF Power Plant</i>			
Revenue	24.0	21.9	22.2
Expenses	<u>27.7</u>	<u>27.6</u>	<u>27.1</u>
Surplus/Deficit	(3.7)	(5.7)	(4.9)
<i>Continued Government Ownership</i>			
Revenue	23.9	21.9	22.2
Expenses	<u>26.5</u>	<u>22.0</u>	<u>22.2</u>
Surplus/Deficit	(2.6)	(0.1)	0
<i>Continued Government Ownership</i>			
Revenue	23.9	21.9	22.2
Expenses	<u>26.5</u>	<u>21.0</u>	<u>21.2</u>
Surplus/Deficit	(2.6)	0.9	1.0

Table 3.1 RDF Power Plant Forecasted Revenues and Expenses Source: KPMG Study

The life cycle analysis was conducted over a period of 20 years. At the time of the analysis, the RDF power plant was only 10 years old and assumed to have a useful life of at least 20 more years. A present value discount rate of four percent was used to compute NPV for each strategic option. NPV for each strategic option is listed in Figure 3.7.

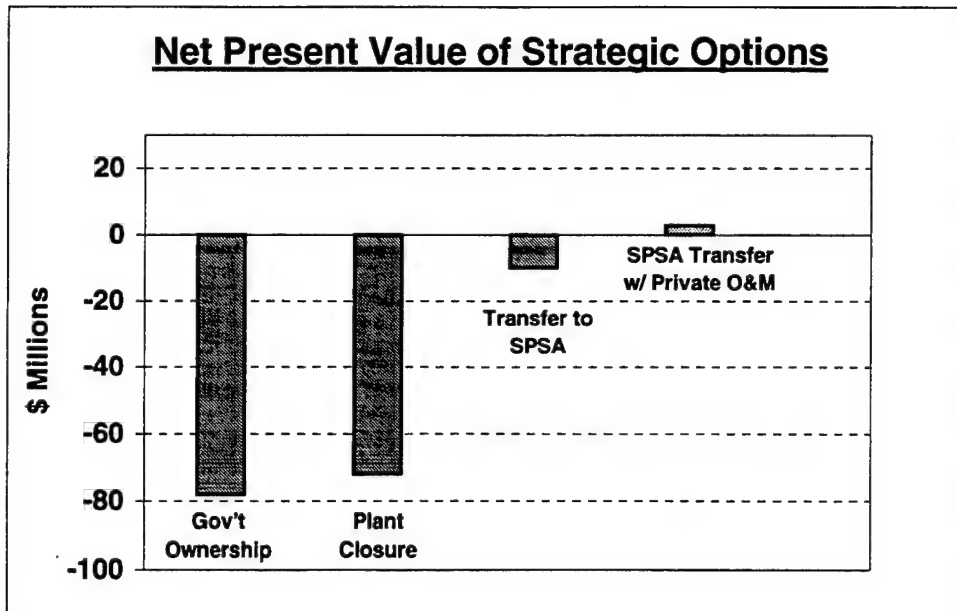


Figure 3.7 Strategic Options Net Present Value

Source: KPMG Study

Projected losses for year 2000 and beyond were expected to exceed \$5.5 million annually if the RDF power plant were to continue operating under government ownership. In contrast, if the RDF plant were privatized, revenue would exceed expenses by \$1 million annually. The NPV for the privatized RDF plant exceeded \$80 million, compared to a NPV of negative (-) \$78 million for the RDF operating under government ownership.

6. Conclusion

KPMG recommend DoN transfer the RDF power plant to SPSA and SPSA hire a private vendor to perform operations and maintenance of the plant. The Navy would benefit from increased reliability and reduced overall costs for steam and electric service. Private industry expertise could increase the efficiency of operations of the RDF power plant, with cost savings passed to the NNSY. SPSA's securing a private vendor to perform O&M at the RDF plant will increase cost savings with projected annual net income of \$1 million for PWC following privatization. Based upon the economic

analysis contained in the KPMG report, PWC requested privatization of the RDF power plant in accordance with DRID 49. DASN (I&F) approved the request, and after meeting all requirements established by DRID 49, ownership of the RDF power plant transferred to SPSA in July 1999.

The transfer of the RDF power plant to SPSA is considered a success by many of the participants involved in the privatization process. However, some contractual and reliability problems emerged following transfer that negatively impacted NNSY's ability to perform its assigned mission. Within six months following privatization, the RDF power plant suffered two major fires that temporarily shutdown NNSY's only steam generating facility.

The fires highlighted two major contentious aspects of the contract signed between SPSA and the Navy that will eventually be settled in a court of law. First, the contract did not contain specific language to remedy many of the issues raised during this major catastrophe. Second, the contract included the requirement for *due diligence*, which left a lot of room for interpretation in a contingency situation, such as the fires presented. Due to the legal action taken on behalf of SPSA, specific information pertaining to the incidents surrounding the two fires at the RDF power plant cannot be discussed in detail in this thesis.

The pending lawsuit contends that SPSA suffered from lost revenue during the periods that the plant was inoperable following the fires and from unnecessary expenses incurred to repair the damage caused by the fire. The contract stipulated that the Navy pay for half of any emergency repair required to keep the plant operational following a catastrophe during the first 18 months of the contract. The government contends that

SPSA is responsible for damages because the fires were caused by operator error, not design flaw as contended by SPSA.

Notwithstanding the legal concerns, there was no suitable back-up system available to generate steam for NNSY. Following the second fire, damage assessment revealed that NNSY could be out of steam power for several weeks. Steam is critical to operations at NNSY. NNSY responded immediately by initiating emergency procurement procedures for two back-up boilers. NNSY had two emergency boilers on line at times 12 and 15 hours after the fire, respectively. The two emergency boilers were the primary provider of steam at NNSY for three days following the major fire. The costs associated with this emergency power are also being contested.

C. HAMPTON ROADS ELECTRICAL DISTRIBUTION SYSTEM

Public Works Center Norfolk (PWC) owns and operates sixteen electrical distribution systems that distribute electrical power to Navy complexes in and around Norfolk, Virginia. Atlantic Division, Naval Facilities Engineering Command (LANTDIV) combined these sixteen systems under one utilities privatization solicitation and referred to this aggregate system as the Hampton Roads Electrical Distribution System. Following an in-depth analysis of an industry proposal, LANTDIV determined that privatization of the Hampton Roads Electrical Distribution System was uneconomical. In accordance with the DRID 49, PWC requested an economic exemption to privatizing the Hampton Roads system. The Deputy Assistant Secretary of the Navy for Installations and Facilities (DASN (I&F)) denied the request because of concern that economics may have improved if full and open competition had been pursued.

PWC currently owns and operates the Hampton Roads distribution system, which delivers electrical power to all the Navy complexes within the Norfolk area. PWC purchases electricity from Virginia Power, the regulated provider of electricity to southeastern Virginia. PWC issued a sole source solicitation for the privatization of the Hampton Roads utility system, because of Virginia Power's exclusive territorial rights to provide utility service to southeastern Virginia.

Virginia Power responded to LANTDIV's solicitation by submitting a proposal for the purchase of the Hampton Roads Electrical Distribution System that included compensation for the system's fair market value. Additionally, the proposal included a ten-year utility service contract for distribution services, which required the Navy to pay fixed annual O&M payments to Virginia Power to maintain the distribution system in accordance with commercial service standards and distribute electrical power to Naval installations connected to the grid. LANTDIV's economic analysis of Virginia Power's proposal concluded that privatization of the Hampton Roads Electrical Distribution System was not economical. This thesis includes information contained in the Hampton Roads Privatization Report submitted to DASN (I&F) by PWC, but does not include any procurement sensitive financial data.

1. Description of the Hampton Roads Electrical Distribution System

The Hampton Roads Electrical Distribution System is an aggregate utility system comprised of sixteen separate electrical distribution systems located in greater Norfolk, Virginia. Major system components include several main power distribution stations and an extensive overhead and underground power distribution system. PWC purchases electrical power from Virginia Power, the regulated provider of electrical power for

Southeastern Virginia. PWC provides electrical power via the Hampton Roads distribution system to the following Naval complexes surrounding Norfolk, Virginia: Naval Base Norfolk, Lafayette River Complex, Hewitt Farms Housing, West Norfolk Substation, NAB Little Creek, NAS Oceana, NALF Fentress, NCTCL Dam Neck, Camp Pendleton, NWS Yorktown, Norfolk Naval Shipyard, St. Helena Annex, New Gosport Housing, Stanley Court Housing, St. Juliens Creek Annex, and NMC Portsmouth.

2. Hampton Roads Electrical Distribution System Operations

The Hampton Roads Electrical Distribution System is maintained and operated by Public Works Center, Norfolk, a Navy Working Capital Fund activity. PWC personnel perform preventive maintenance, corrective maintenance, recapitalization, and emergency response in accordance with existing Virginia Power standards. PWC bills the sixteen Navy complexes in the Norfolk area for electrical power usage on a monthly basis. The rate charged includes a factor that accounts for O&M and recapitalization costs.

3. Regulated Utilities in Virginia

Virginia statutes grant public utilities exclusive territorial rights to provide utility service to commercial and residential customers, subject to certification by the State Corporation Commission (SCC) of Virginia. The SCC prohibits public utility companies from owning utility facilities or providing utility service outside their exclusive service territory, unless it is proved to the satisfaction of the SCC that the service rendered in subject territory is inadequate.

A legal review by LANTDIV legal counsel determined that Virginia Power was the only entity certified to generate, transmit or distribute electricity in the Norfolk area.

Legal counsel concluded that private entity ownership of an on-base distribution system would classify the private sector owner as a public utility subject to regulations of the SCC. LANTDIV therefore concluded that competition was not required in the proposed divestiture of the Hampton Roads Electrical Distribution System. Accordingly, negotiations were restricted to Virginia Power and LANTDIV issued a sole source solicitation.

4. Hampton Roads Electrical Distribution System Life Cycle Costs

LANTDIV performed an economic analysis comparing the costs contained in the Virginia Power proposal to the costs that should be incurred if the system were owned, operated and maintained by the government in accordance with all applicable legal and regulatory requirements. This approach is required by DRID 49 to bring a level of parity between the costs reflected in the private sector proposals and the economic baseline survey developed by the Navy. The economic analysis performed for the Hampton Roads Electrical Distribution System was conducted using methods consistent with the requirements established by Office of Management and Budget (OMB) Circular A-94, DRID 49 and statute 10 USC 2688. Highlights of statutory requirements of 10 USC 2688 are listed in Figure 3.9.

<u>Statutory Requirements of 10 USC 2688</u>	
<ul style="list-style-type: none">• Government must receive Fair Market Value consideration for conveyance of a utility system.• The long-term economic benefit of the conveyance to the United States must exceed the long-term economic cost of the conveyance to the United States.• The conveyance must reduce the long-term costs to the United States for utility services provided by the utility system concerned.	

Figure 3.8 Statutory Requirements of 10 USC 2688

The basic purpose of the life-cycle analysis required by DRID 49 is to determine whether it is economically more cost-effective to own a utility system or privatize it. If the decision rendered is to own a particular utility system, the economic life-cycle costs (for a given level of service) identified in Figure 3.10 must be recognized.

Government Owned Economic Life-Cycle Costs

- Should cost of operations and maintenance for 25 years,
- Should cost of recapitalization during the 25-year period,
- Imputed cost for catastrophic-loss insurance for 25 years,
- Opportunity cost of not selling the asset for FMV.

Figure 3.9 Life-Cycle Costs Identified in DRID 49

The life-cycle costs are reduced by the life-cycle benefit in the residual value of the system at the end of 25 years. If the decision rendered is divestiture of a particular system, then the costs identified in Figure 3.11 must be considered (given the same level of service).

Private Owned Economic Life-Cycle Costs

- Costs of rates and charges for utility service for 25 years, and
- Direct costs of conveyance involved in the transaction.

Figure 3.10 Life-Cycle Costs Identified in DRID 49

PWC estimated O&M costs based on *should costs* as per DRID 49 instead of historical costs. Insurance costs were imputed as an economic cost to account for self-insurance for catastrophic loss. The life-cycle analysis period of 25 years did not exceed the technological and physical life expectancy of the Hampton Roads Electrical Distribution System, which was considered to be at least 25 years. The analysis did not

include imputed land costs, because transfer of land was not considered a factor in the privatization of the Hampton Roads system.

LANTDIV concluded that the cost of continued Navy ownership of the Hampton Roads Electrical Distribution System was significantly lower than the cost of ownership proposed by Virginia Power. On a present value basis, Navy ownership costs equated to two thirds of the costs identified in the Virginia Power proposal. Even more significant, the NPV was based on an agreed upon credit for the utility system's FMV that was half the Navy's original estimate. The Navy used Virginia Power's lower estimated value to provide for a more pro-privatization analysis. In addition to the increased cost of ownership, privatization of the utility system yielded a seventy-percent increase in the costs for utility service.

5. Proposed Level of Service

Virginia Power's proposal was based on providing standard commercial service during operations of the Hampton Roads utility system. However, PWC provided a higher level of service than standard commercial service. PWC provides shorter response time to power outages, provides systems with redundancy, and services waterfront areas involving special requirements that were not factored into Virginia Power's proposal. As a result, the cost-effective analysis compared proposals that did not provide equivalent benefits. This was not considered significant, because Virginia Power's proposal was already more expensive than the costs of continued Navy ownership. Providing a higher level of service would have made the Virginia Power proposal even more expensive.

6. Sensitivity Analysis

During the economic assessment, a sensitivity analysis was performed to evaluate the impact caused by expense items with the greatest potential for variance. Any expense item that significantly factored into determination of NPV or potentially fluctuated based on local conditions or uncertainty was factored into the sensitivity analysis. The sensitivity analysis did not reveal any conditions that altered the findings of the economic assessment.

7. Independent Review of Findings

The consulting firm Brubaker & Associates, Incorporated (BAI), performed an independent review of the economic analysis for privatizing the Hampton Roads Electrical Distribution System. BAI agreed with the LANTDIV assessment that privatization of the system was not economical. LANTDIV conclusions are listed in Figure 3.12.

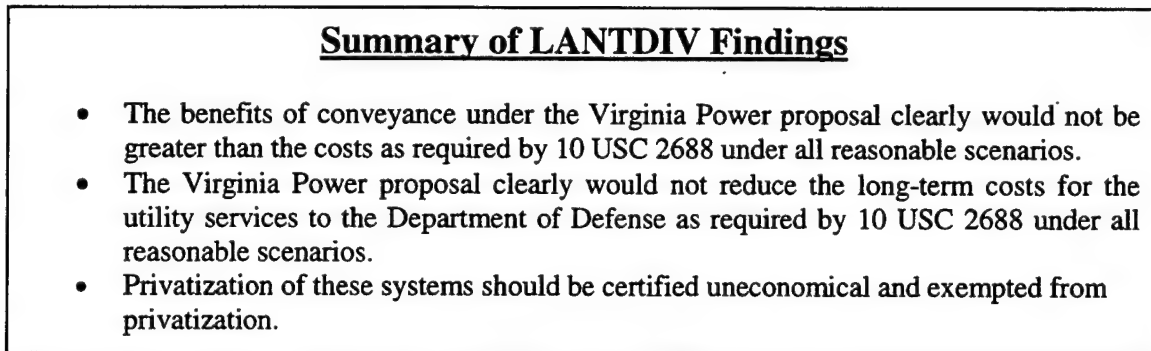


Figure 3.11 LANTDIV Findings

8. Conclusion

Even though the analysis clearly supported that privatization of the Hampton Roads Electrical Distribution System was uneconomical, PWC's request for economic exemption was denied. DASN (I&F) did not concur with LANTDIV legal counsel's

position that Virginia Power was the only entity capable of providing utility service, which provided justification for LANTDIV issuing a sole source solicitation. DASN (I&F) disapproved the request based solely on legal opinion expressed by the General Counsel the DoD, which stated "notwithstanding state laws and regulations, we must dispose of all our utility systems using competitive procedures." (DoD (GC), 24 February 2000, p. 8) PWC was directed by DASN (I&F) to proceed with privatizing the Hampton Roads utility system using competitive procedures.

PWC invested scarce resources into producing an economic analysis that DASN (I&F) considered as "exemplary, and expected that it will be adopted, in large part, as a model by DoD." (DASN (I&F), 1 March 2000, p. 1) He congratulated PWC for their "thoughtful, comprehensive approach to a very difficult problem." (DASN (I&F), 1 March 2000, p. 1) In that respect, the \$2.3-million spent on contract advisory and assistance services was well spent (Utility Director, PWC Norfolk, 2000).

However, the opinion asserted by the General Counsel of DoD concerning the applicability of state utility commission's authority over a privatized utility system located on a DoD installation caused the request for economic exemption to be denied. PWC chose a sole source solicitation based on LANTDIV legal counsel findings, as indicated above. The consensus amongst key participants from PWC is that if an entity other than the regulated provider of electric power in the Norfolk area is selected for system transfer, the decision will be challenged in a Virginia State Court. This represents a significant problem to the ongoing implementation of utilities privatization in the Navy.

D. SUMMARY

These two case studies identify several emerging challenges and problems facing the privatization of utilities in the Navy. The issues identified in these two case studies manifested themselves in undesired outcomes with significant consequences to the commands involved. The intent of this chapter was to identify the major issues associated with the privatization of the NNSY RDF power plant and the Hampton Roads Electrical Distribution System. The next chapter will analyze the critical issues raised in this section to determine their impact to the commands involved and to the ongoing Navy utility privatization program. The objective is to provide a basis for recommending improvements to the process for privatizing utility systems in the Navy.

IV. ANALYSIS OF THE ONGOING PROCESS FOR PRIVATIZING UTILITIES

A. METHODOLOGY OF ANALYSIS

This chapter will analyze the process for privatizing utility systems in the Navy, from inception to implementation. It discusses theory that describes four essential elements required for the acceptance of any innovative idea involving radical change. The theory provides a framework for analysis of the strengths and weaknesses of the utilities privatization program. Recommendations for improvements to the process for privatizing utility systems in the Navy will be offered in the next chapter.

B. RADICAL CHANGE BY ENTREPRENEURIAL DESIGN

In "Transforming Public Policy" (Roberts and King, 1996), the *Theory of Radical Change by Entrepreneurial Design* is offered as a tool for researchers who study and enhance the process of change. Roberts and King aim to build a better understanding of radical change for both practitioners and researchers alike.

Policy change in government, radical or incremental, is treated as policy innovation (Polsby, 1984). The innovation process begins with an innovative idea: a new technology, a new service, a new product, or even a new administrative process or procedure (Daft and Becker, 1978). The central element of an *innovative idea* is its departure from existing practices: it supplants standard operating procedures (1996, p. 5).

1. Innovative Process

A *new idea* is defined as any "idea, practice, or material artifact perceived to be new by the relevant unit of adoption." (Zaltman, Duncan, and Holbek, 1973, p. 10) The transformation from *new idea* to *accepted practice* is accomplished through an *innovation process*. An *innovation process* groups activities into a set of logically related

categories, commonly referred to as stages or phases. Roberts and King identify the four phases as *creation*, *design*, *implementation*, and *institutionalization*. The first stage:

creation, marks the emergence and development of an innovative idea and the association of the idea with some need, problem, or concern. The linkage between innovative idea and problem or need produces a candidate solution that then competes with other candidate solutions in the marketplace of ideas (1996, p. 7).

Other authors commonly refer to this stage as *evaluation* (Hage, 1980). Roberts and King prefer the term *creation*, emphasizing the creative aspect of defining a problem and offering solutions. The critical element of this stage is “a recognition of some failure and search for a solution.” (Hage, 1980, p. 211)

According to Roberts and King, the second stage, *design*, “translates our innovative idea into a concrete form so that those in authority have something tangible to review.” (Roberts and King, 1996, p. 7) The critical issue in design involves the search for resources and their availability. Radical change frequently fails because of inadequate resources: insufficient funding or personnel without desired skill sets or personality characteristics (Hage, 1980).

The third stage is referred to as *implementation*. According to Roberts and King:

Implementation brings the innovative idea into actual practice. Feedback from the implementation process answers several critical questions:

- ☐ Does the idea work as anticipated?
- ☐ Does it have to be modified to fit organizational conditions – and if so, how?
- ☐ Do those who use the ideas support it or want to block it?
- ☐ Does the idea meet the need or solve the problem as promised?
- ☐ Is it worth the expenditure of time and resources?
- ☐ Is it better than what we have already?” (1996, p. 7-8).

Key to this stage is the need to continue redesign. "Many innovative ideas die aborning because of unwillingness to continue to develop the necessary technology to make the new product viable." (Hage, 1980, p. 211)

The final stage of the innovation process is referred to as *institutionalization* or *routinization*.

Having passed the hurdle of implementation and survived testing and evaluation, it moves into the realm of accepted practice. No longer questioned in terms of its viability, the once-innovative idea is incorporated into the routines of normal operations. The debate over its viability and survivability has been settled, and the idea is no longer viewed as something new. (Roberts and King, 1996, p. 8)

2. Process Participants

Roberts and King describe the following five key participants in the policy innovation process (1996, p. 10-15):

a. Policy Entrepreneurs

Policy entrepreneurs determine the nature of a problem and its causes, the range of possible solutions and the strategy of most likely to achieve a desired outcome given the available resources. These are individuals who introduce, translate and implement an innovative idea into public practice.

b. Policy Intellectuals

Policy intellectuals generate innovative ideas, but do not engage in design. They are the source and stimulus of new ideas, although they do not engage in the translation of ideas into more formal proposals, statements, or prototypes.

c. Policy Advocates

Policy advocates are individuals who do not only contribute to invention or develop innovative ideas, but also extend their work into the design phase. Their function is to mold an idea into a proposal, and to press for its acceptance.

d. Policy Champions

Policy champions are those involved in both the design and implementation phases of the innovation process. They typically command the power and resources to push an innovative idea into reality.

e. Policy Administrators

Policy administrators take the sometimes very general statements of purpose and intent in the law and specify procedures to make the law come to life. They link ideas and execution, words and deed. They combine the necessary conditions of successful innovation by joining the formulation of innovative ideas with their execution.

3. Relationship Between Entrepreneurship and Innovation

According to Roberts and King,

radical change by design occurs through the twin processes of entrepreneurship and innovation. Entrepreneurship brings forth a new idea, attracts interest, and mobilizes resources to support it. Innovation moves the new idea through the constraints of the policy process. A new idea does not become an innovation until it has passed the hurdles of initiation, development and implementation. (1996, p. xii)

“If a new idea is not created, designed and implemented, it will not be able to attain the developed status we attribute to innovation.” (Roberts and King, 1996, p. 10)

C. BACKGROUND OF UTILITIES PRIVATIZATION IN DOD

In December 1997, the Deputy Secretary of Defense initiated radical change throughout DoD when he signed DRID 9 directing the Military Departments to develop a plan for privatizing utility systems by 1 January 2000. Privatization of utilities involves complete divestiture of real plant and property on an enormous scale and shifts some of the responsibilities for DoD infrastructure management to the private sector. Energy providers from the private sector are assumed to be better staffed, organized and equipped to provide safe, reliable and more cost-effective energy, if providing energy is their core competency. As a result of utilities privatization, the Military Departments

could change the way they manage energy in the future, placing more emphasis on managing energy consumption and less on managing energy production.

From its inception, the utilities privatization program quickly received high-level support and full implementation was mandated by SECDEF. However, to the detriment of the program, the process for privatizing DoD utility systems did not follow a structured sequential approach, as the innovative process described above suggests. The process for privatizing DoD utility systems bypassed a design phase and proceeded directly to implementation, which required participants to design “on the fly.” As a result, weaknesses in the privatization process were not satisfactorily addressed and subsequently contributed to the undesired outcomes identified in the two case studies discussed in the previous chapter.

To complicate matters further, DoD decision-makers initially underestimated the scope and magnitude of privatizing utility systems on military installations. Within the first year of the program, the estimated number of utility systems available for consideration for privatization increased from 700 to 2300. In the Navy alone, there were over 900 utility systems identified as potential privatization candidates. Along with the increase to the number of systems to be considered, the complexity of issues surrounding privatization also increased.

D. CREATION OF THE IDEA TO PRIVATIZE DOD UTILITY SYSTEMS

1. Established Need for Utilities Privatization in DoD

The Defense Reform Initiative was commissioned to identify cost saving measures that DoD could incorporate to meet the mounting fiscal challenges caused by years of declining defense budgets. DoD sought innovative approaches to financing

procurement shortfalls and modernization projects that had been neglected since the late 1980s. The savings generated from privatizing utility systems could potentially allow DoD to reallocate scarce resources to the functions that are most critical to the organization's core competencies: warfighting and warfighting support.

DoD consumes 70 percent of all the energy consumed by the federal government. This costs DoD nearly \$6-billion a year, with \$2.4-billion of that in infrastructure maintenance. (CRS, 1999) The utilities privatization program is designed to get DoD out of the business of owning, operating and maintaining utility systems, not only to save money, but also to be more efficient. Maintaining and upgrading DoD utility systems would be the responsibility of private companies, potentially saving DoD several billion dollars in upgrade and repair costs. DoD would be able to concentrate its efforts on efficient energy management instead of utility infrastructure management.

Privatization through total asset divestiture takes the burden off DoD and places that responsibility on the shoulders of a utility provider that is organized, staffed, financed and equipped to provide a better level of safe, reliable and environmentally compliant service. The utility provider bears the burden of environmental compliance and maintenance costs, major system renovations and construction, and equipment, manpower and overhead. Additionally, companies which provide utility service as their primary business can provide higher levels of service for electricity, gas, water and wastewater and can do it at best value.

Utilities operation and maintenance continue to be underfunded in DoD according to industry standard; the Navy invested 1.6 percent of plant replacement value as compared to the industry average of 3.5 percent (Commander, NAVFAC, 2000). The

aging infrastructure presents serious operational and safety concerns that could cost billions of dollars to remedy throughout DoD. Civilian manpower restrictions and the "rightsizing" of the military have affected DoD's ability to operate and maintain utility systems properly. Under a privatized system, DoD will become a utility customer, not a utility provider. DoD will become a customer who buys utility services and the technical expertise, resources, and professional knowledge of the utility company.

Utilities privatization can generate savings estimated at \$327-million annually. (CRS, 1999) Most of the savings generated would result from reduced military construction, personnel, equipment and general overhead costs. These savings could offset the projected increase in installation utility bills that are expected to increase by nine percent as a result of privatization. (CAA, 1998) DoD plans to increase funding specifically targeted for this expected increase.

The estimated annual savings of \$327-million appears substantial, but is criticized from a variety of Government Accounting Office (GAO) reports. The basis for criticism is the inability of DoD to accurately track costs and savings, particularly on cost avoidance measures; Deputy Under Secretary of Defense (Installations) acknowledged during Congressional Hearings on 11 March 1999, "That is valid criticism" (CRS, 11 Mar 1999).

2. Participants in the Creation Phase of Utilities Privatization in DoD

The utility industry has traditionally been comprised of individuals that are very conservative in nature and extremely slow to respond to change (Competitive Sourcing & Acquisition Advisor, NAVFAC, 2000). DoD utility experts are no different; most are engineers that have a very detail-oriented analytical approach to business and have not

adopted the characteristics normally associated with those individuals espousing to better business practices (Competitive Sourcing & Acquisition Advisor, NAVFAC, 2000). Prior to the issuance of DRID 9, most of these “old guard” engineers could not envision DoD adopting a program effecting such radical change as the utilities privatization program. Hence, these experienced engineers were not the innovators of utilities privatization in DoD.

Instead, the innovators were a collection of DoD policy intellectuals who were motivated by the precepts of the Defense Reform Initiative: use revolutionized business practices to generate savings in the form of reduced infrastructure costs. The innovators were a group of DoD policy makers who subscribed to better business practices, not a group of engineers with extensive utility system experience. However, they were the source and stimulus for privatizing utilities in DoD and their idea potentially could save millions of dollars each year in reduced infrastructure costs.

Ideally, the innovators would have worked with a group of engineers with utility system experience to further develop the ideas of privatizing DoD utility systems. The engineers could have assisted in the development of a implementation strategy, potentially increasing the programs likelihood of success. The engineers could have served in the critical capacity of policy entrepreneur, actively participating in the program from inception to full-blown acceptance.

E. DESIGNING THE PROCESS FOR PRIVATIZING DOD UTILITIES

Prior to the “rightsizing” of government personnel during the early 1990s, DoD had developed a very competent corps of engineers that managed the utility infrastructure for military installations. A significant portion of these engineers left DoD as a result of

rightsizing, taking a considerable share of DoD's utility expertise with them (Competitive Sourcing & Acquisition Advisor, NAVFAC, 2000). As a result, there were few qualified engineers with utility system experience that could effectively challenge the assertions of the creators of DRID 9.

Without the benefit of credible input from experienced engineers from the field, utilities privatization went from innovative idea to mandate with the issuance of DRID 9. As such, DRID 9 provided very little guidance; instead it identified an end state, which would necessitate sweeping change to accomplish. The direction DRID 9 provided was akin to being told to "play ball" without the benefit of knowing what sport one was competing in (Deputy Director for Energy and Utilities Privatization, OSD, 2000). Also, the time constraints imposed by DRID 9 did not give participants adequate opportunity to figure out an effective implementation strategy, which could have increased the probability of utilities privatization achieving desired outcomes.

To address the shortcomings of DRID 9, DRID 49 was issued within one year. DRID 49 provided more specific guidance and extended the deadline for privatization of all systems not exempted for security or economic reasons to 2005. It also established milestones that would enable tracking of progress towards the new deadline. DRID 49's purpose was to:

...reset the goal for (privatizing utility systems in DoD), establish the approach to its management and oversight, and convey guidance for assessing exemptions, conducting the divestiture of utility assets using competitive procedures, and performing economic analyses of the transactions. (DRID 49)

DRID 49 provided much needed guidance for individuals participating in the process for privatizing DoD utility systems. Unfortunately, DRID 49 is a design

document that should have been issued prior to the implementation of utilities privatization. DRID 49 was issued in reaction to emerging problems that were identified by participants in the ongoing privatization process. DRID 49 should have been issued as the utilities privatization program announcement, following extensive consultation between the policy intellectuals that created the program and policy advocates who could have assisted in molding the idea into a workable proposal.

Engineers involved in the program's development could have provided keen insight to the policy intellectuals and fostered greater acceptance within the community of utility system managers DoD-wide. These engineers could have experimented with and examined a proposed implementation plan prior to its issuance, increasing the probability for success. The author does not imply that the engineers should have been the only policy advocates involved; instead they should have complimented an advocacy team comprised of many disciplines, which is required to develop a thorough implementation plan for any proposed radical change. Policy advocates with experience in contracts, acquisitions, environmental issues, budgetary process and legal matters should all have been actively involved in development of an implementation plan that could have been issued as the program's announcement.

F. PRIVATIZATION OF UTILITIES IMPLEMENTATION

According to Roberts and King, implementation transforms an innovative idea into actual practice. Implementation involves continuous redesign until variance in outcomes is minimized (Hage, 1980). A successful implementation phase requires a feedback system that answers the following critical questions:

Does the idea work as anticipated? Does it have to be modified to fit organizational conditions – and if so, how? Do those who use the ideas

support it or want to block it? Does the idea meet the need or solve the problem as promised? Is it worth the expenditure of time and resources? Is it better than what we have already? As these questions suggest, we view testing as part of the implementation process (Roberts and King, 1996, p. 8)

As stated previously, utilities privatization in DoD proceeded directly from innovation to implementation, bypassing a design phase. This caused participants to "design on the fly." Implementers wasted valuable resources while "designing on the fly." Instead of testing in a controlled setting, they were effectively testing in an uncontrolled environment on a large scale.

DoD did not establish an adequate feedback system at the onset of utilities privatization. Applying the Roberts and King model to utilities privatization, the crucial questions identified above should be answered during the implementation phase of utilities privatization in DoD. Some of these questions were addressed with the issuance of DRID 49, when the program was modified to better fit organizational conditions. However, not all of the crucial questions identified above were adequately addressed with DRID 49's issuance.

Defense Reform Initiative Directive 49 set forth criteria for exempting systems from privatization, using competitive procedures and conducting economic analysis, but did not provide enough detailed guidance on how to implement the program. Instead, each Military Department was encouraged to explore the promise of alternative approaches to divestiture of DoD utility systems. This left too much room for interpretation. During the DoD Industry Forum, *Privatization of Utility Systems*, hosted by Deputy Under Secretary of Defense (Installations), a private sector firm deeply involved in the utilities privatization effort since its inception stated:

We have had the opportunity to review several approaches (to utilities privatization)...All these reflect differing approaches...and in some cases, the differences are monumental...The approach being used by the Navy, reflecting the delegation of utilities privatization to the Regional Naval Facilities Engineering Commands, seems destined for a great deal of inconsistency. (GDS, 4 Apr 2000, p. 5)

As a result of these inconsistencies, private sector companies competing to privatize DoD utility systems were unhappy with the system that was filled with inconsistency. The private sector felt that the only thing predictable in the privatization process was that the process was unpredictable. Some larger utility entities have elected not to compete, because of their dissatisfaction with the process. Potentially, a firm capable of providing best value will not compete. The problem noted was that each service was implementing utilities privatization differently, even within the same geographical region (CFG, 2000). This was due in large part to a lack of specific guidelines on *how* to privatize utility systems in DoD.

Further complicating the implementation of utilities privatization, the program was implemented DoD-wide instead of using small demonstration projects to gather data that could have been incorporated into a specific model for change. As of January 2000, every installation in DoD was in the process of implementing the utilities privatization program. NAVFAC provides oversight to DoN installations, but each installation has the flexibility to administer the program as it sees fit. With so much flexibility extended to each installation, it's difficult to predict the outcome of each privatization effort. Each installation's probability for success increases as its quality and availability of resources increases, given that they are willing to commit these resources to the privatization effort. Resources are not limited to monetary constraints; they include human resource factors

such as skill, experience, training and education levels for personnel. All these factors have finite limits.

Navy and Marine Corps Shore Installations located on the East and West Coasts are approaching utilities privatization differently. DoN activities on the West Coast are administering the privatization program as independent entities (Privatization Team, NAVFAC EFD (SW), 2000). Each installation is implementing the program independent of one another. NAVFAC EFDs provide guidance and assistance to each installation within their respective region, but there is limited cooperative effort between installations. The premise behind this approach is that each installation has issues that are peculiar and specific only to that installation. The areas of commonality are not considered significant enough to discontinue this approach. Each installation is provided the necessary tools to implement the program; however each installation's available resources appear to be the limiting factor. Available resources vary from installation to installation.

To the contrary, DoN installations on the East Coast have formed Councils within their respective regions (Branch Head, Utilities Engineering, NAVFAC EFD (Atlantic), 2000). Council membership includes delegates from all the installations within a given region. NAVFAC provides guidance to each council and each council provides input to the installations within its respective region. The installations agree to cooperate with each other and are bound by council decisions. This approach allows East Coast installations to leverage their limited resources. Overall, the system is working well as evidenced by comments from participants directly involved with privatizing utility systems on installations located on the East Coast.

Despite the differences in their approach, both East and West Coast installations are making progress towards meeting the requirements established by DRID 49. However, sweeping change such as privatizing utility systems should not be implemented at the discretion of each installation. The privatization of utility systems potentially causes irreversible change. Once a system has been privatized, an installation's utility system support network is phased out. This eliminates a system to fall back on in event a private sector entity defaults following system transfer. The consequences could be disastrous if even one privatized system providing energy to a military installation defaults.

G. INSTITUTIONALIZATION OF PRIVATIZATION OF UTILITIES

The institutionalization of privatized utility systems in DoD is marked when the program moves into the realm of accepted practice throughout DoD. This will occur when the once-innovative idea is incorporated into the routines of normal operations. There are three major hurdles that this analysis identifies that must be overcome prior to institutionalization: reducing fair market value variances, reducing variances in economic analyses, and resolving issues concerning state utility commissions authority over private sector utility systems located on DoD installations.

To overcome the effects caused by these major challenges, relief is required in the form of policy directive and/or enactment of Congressional legislature. The following three sections discuss each major challenge in greater detail.

1. Variance in Determination for Fair Market Value

Title 10 USC 2688 grants the Secretary of Military Departments authority to convey a utility system under its jurisdiction to a municipal, private or other entity, in whole or in part. The Secretary must receive an amount equal to the fair market value, as determined by the Secretary. The amount of consideration equivalent to FMV is to be determined in terms of money. Consideration must take the form of a lump sum payment or a reduction in charges in utility services provided by the entity concerned.

There are several accepted methods for computing FMV of DoD utility systems. The Economic Analysis Handbook (NAVFAC P-442) describes FMV as a cost measured by "market price, scrap value, or alternative use value." OMB Circular A-94 refers to FMV as that value "of similar properties that have been traded on commercial markets in the same or similar localities." This is the same definition stated in DoD Instruction 7041.3, *Economic Analysis for Decisionmaking*, to generate an imputed purchase of an asset. All of these methods are acceptable.

A key element in Title 10 USC 2688 is that the Secretary of each Military Department must make determination as to FMV. As previously stated, there are several accepted methodologies for determining FMV, each yielding different results. The variance in results can materially affect the outcome of the economic analysis.

2. Variance in Economic Analysis

Title 10 USC 2688 requires an analysis that demonstrates that the long-term economic benefit of the conveyance of a DoD utility system exceeds the long-term economic cost. It further requires that analysis demonstrate that conveyance will reduce the long-term costs for utility services provided by the utility system conveyed. The

economic analysis must take into account the cost of operation, maintenance, and system improvements that *should* be incurred by DoD to operate and maintain a utility system in accordance with accepted industry practice and all applicable legal and regulatory requirements. The economic analysis must be conducted consistent with OMB Circular A-94 and DoD Instruction 7041.3.

The purpose of OMB A-94 is “to promote efficient resource allocation through well-informed decision-making by the Federal Government.” It provides general guidance for conducting cost-benefit analysis (CBA) and cost-effectiveness analysis (CEA). CBA is the recommended technique, but CEA is appropriate when the benefits from competing alternatives are the same. (OMB A-94)

The benefits associated with utilities privatization are the same regardless of whether a system is privatized or retained under government ownership. Therefore, the less comprehensive technique of a CEA is appropriate to use during an economic assessment of a DoD utility system considered for privatization. Privatizing a DoD utility system is considered cost-effective, if it is determined to have the lowest costs, expressed in net present value (NPV), as compared to the computed the NPV for retaining government ownership.

Department of Defense Instruction 7041.3 provides specific procedures for conducting cost-effectiveness economic analysis for evaluating the costs and benefits of investment alternatives. It cautions that the method of documentation used to record and summarize cost and benefit information varies between Military Departments. As a result, it encourages departments to standardize format and documentation requirements to ensure consistent and complete economic analysis. The author of this thesis cautions

that the same variance exists within each Military Department as well. The Comptroller, NAVFAC, stated in a letter dated 24 March 2000 to ASN (Financial Management and Comptroller) that "utility privatization is a new initiative with no established procedures or regulations." Although the statement is technically incorrect in the absolute sense, it underscores the validity of the author's assertion.

The author's caution is based on the implied discretionary authority granted to economic analysts by DoD. Results can be significantly influenced by varied assumptions and techniques authorized for use in formulating estimates. DRID 49 identifies the requirement for estimating *should* costs, but there is no established DoD guidance on what constitutes acceptable estimating techniques. It is at the discretion of the installation to determine estimated *should* levels for maintenance and recapitalization. Results may be subject to wide variation and can be biased to reflect the views of those making the assumptions and estimates. Without the presence of strict guidelines on how to estimate input factors, potential inaccuracy exists in the economic analysis conducted for DoD utility systems.

3. State Utility Commissions' Authority

The DoD utilities privatization is a new initiative and there is continued uncertainty as to the legal status of privatization contracts, particularly related to regulated utilities and utility franchises from state utility commissions. DRID 49 provided the following guidance for privatizing utilities in states with franchised or regulated utilities:

...State law and regulatory policy should be considered when determining the form of competition for franchised and regulated utilities. Where state law and regulatory policy specifically prohibits competition, a sole source negotiation may be pursued after evaluating responses to

synopses. The Military Department, however, may not rely on the assertions of the franchised or regulated utility in this regard. Rather, it must make an independent legal finding that the franchised or regulated utility is the only entity authorized to own and operate the utility system to be privatized. (DRID 49, 1998)

Despite this guidance, uncertainty persisted, as evidenced by the DoN Utilities Privatization Quarterly Report, October 1999, which asked: "Specifically, when is the Federal Government required to adhere to state law, and when is it immune from state law (with respect to privatizing DoD utility systems)?" In response, the General Counsel of the DoD provided further guidance in a memorandum dated 24 February 2000 to the General Counsel for each service. It stated:

When the Department disposes of an on-base utility system, and more than one entity expresses an interest in the conveyance, the Department must dispose of the utility system "using competitive procedures" notwithstanding state laws and regulations regarding who can own a utility system. Congress has not waived the sovereign immunity of the United States with respect to disposal. Any effort to dispose of the system in a non-competitive manner, when more than one entity expresses an interest in the conveyance, even if undertaken to voluntarily comply with state law, would violate the express terms of section 2688.

Despite the General Counsel opinion, further legislative relief is necessary. The General Counsel's opinion is not binding in a court of law deciding applicability of the state regulatory authority over private sector utility systems located on DoD installations. The General Counsel's opinion only provides guidance and direction to DoD activities, not to state utility commissions. Legal challenges will be costly and can result in significant delays. As of April 2000, there were six legal challenges to privatization decisions and that number is expected to rise significantly over the next year, unless Congress provides legislative relief.

It is not important whether or not Congressional legislation requires DoD to abide by regulations established by state utility commissions. What is relevant is that a decision must be made that will establish a legal foundation to base the official DoD position. Otherwise, as stated by Deputy Director for Energy and Utilities Privatization, OSD, at the Society of American Military Engineers Symposium in Washington D.C. on 2 May, 2000, "legal battles will become a (routine) part of the process."

H. CONCLUSION

This chapter analyzed the process for privatizing utility systems in DoD using a model of process change. Strengths and weakness associated with the process for utilities privatization were identified. Three major challenges facing the institutionalization of utilities privatization were identified as factors that could affect the ultimate success of the program achieving its primary objective:

To transfer ownership, responsibility and risks to a highly qualified private party, utilize private capital for system investments, and secure and maintain high quality, reliable service that is more economical. (RFP, October 29, 1999, p. 13)

The three major challenges identified in this report are: (1) variance in determination of Fair Market Value, (2) variance in economic analyses, and (3) State Utility Commissions' authority over utility systems located on DoD installations. Recommendations will be offered in the next chapter that specifically address these major challenges and other problems facing the privatization of utility systems in DoD, as identified in this analysis.

THIS PAGE INTENTIONALLY LEFT BLANK.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY

In response to the Defense Reform Initiative, the Secretary of Defense initiated radical change throughout DoD when he directed the Military Departments to privatize all utility systems, except those systems needed for unique security reasons or when privatization was determined to be uneconomical. Utilities privatization in DoD involves the total divestiture of utility systems and associated activities from military installations to the private sector. Under a privatized system, DoD will become a utility customer, not a utility provider.

DoD consumes 70 percent of all the energy consumed by the federal government. This costs DoD nearly \$6-billion a year, with \$2.4-billion of that in infrastructure maintenance. (CRS, 1999) Nevertheless, utilities operation and maintenance continue to be underfunded in DoD, according to industry standard; the Navy invested 1.6 percent of plant replacement value as compared to the industry average of 3.5 percent. (Commander, NAVFAC, 2000) As a result, the condition of the infrastructure presents serious operational and safety concerns that could cost billions of dollars to remedy throughout DoD.

The objective of the utilities privatization program is to get DoD out of the business of owning, managing, and operating utility systems and turn that responsibility over to private sector professionals who are specifically organized, trained and staffed. Private sector companies that provide utility service as their primary core competency can provide higher levels of service for electricity, gas, water and wastewater and can do

it at best value. Privatization of DoD utility systems can generate an estimated savings of \$327-million annually. (CRS, 1999) These savings will allow DoD to reallocate scarce manpower and financial resources to the functions that are most critical to DoD core competencies: warfighting and warfighting support.

As of December 1999, DoN had awarded privatization contracts for two systems out the 973 systems available for privatization. In this report, two case studies were selected for analysis to help identify emerging challenges facing the implementation of utilities privatization in the Navy. The first case study involved the Norfolk Navy Shipyard Refuse Derived Fuel Power Plant, which was the first Navy utility system to privatize under the guidelines of the Defense Reform Initiative. The second case study involved the Hampton Roads Electrical Distribution System, which was the first large-scale utility system in the Navy to request economic exemption under the procedures established by Defense Reform Initiative Directive 49.

This report analyzed the process for privatizing utility systems in the Navy, with special emphasis on the critical issues identified in the aforementioned case studies. The intent was to determine the impact these problems caused to the commands involved and to the ongoing implementation of the utilities privatization program in the Navy. The objective was to provide a basis for offering recommendations, which are intended improve to the process for privatizing utility systems in the Navy.

B. CONCLUSIONS AND RECOMMENDATIONS

Based on the research and findings of this thesis, the following conclusions and recommendations are offered to improve the process for privatizing utility systems in the Navy.

1. Conclusions

a. The Navy's implementation plan for utilities privatization does not provide enough specific guidance on 'how' to privatize utility systems.

DoD directed every Service to privatize all utility systems by 2005, except those systems exempt for security reasons or when privatization was determined to be uneconomical. However, DoD's direction did not provide specific guidance on *how* to privatize utility systems; each Service was directed to develop their own implementation plan. DoN's strategy was to provide installations with general guidance versus specific guidance to encourage innovative thinking towards this revolutionary approach to reducing infrastructure costs.

b. The determination of a utility system's Fair Market Value is dependent upon and varies with the methodology of computation and the quality of assumptions made by estimators.

Title 10 USC 2688 grants the Secretary of Military Departments authority to convey a utility system for an amount equal to the Fair Market Value, as determined by the Secretary. There are several accepted methods for computing the FMV of DoD utility systems, each yielding different results. The variance in computed FMV can materially affect the outcome of the economic analysis.

c. Economic analyses for DoN utility systems cannot be relied upon, because they potentially reflect inaccurate, and possibly misleading, information due to the use of unproven estimating techniques.

Title 10 USC 2688 requires an analysis that demonstrates that the long-term economic benefit of conveyance of a DoD utility system exceeds the long-term

economic cost. DRID 49 identifies the requirement to perform the economic analysis using estimated *should costs*: costs that would be incurred by DoD to operate and maintain a utility system in accordance with accepted industry practice. However, there is no established DoD guidance on what constitutes acceptable estimating technique. Each estimate will be dependent upon the validity of assumptions made at each installation. Without the presence of strict guidelines on how to estimate input factors, potential inaccuracy exists in the economic analysis conducted for DoD utility systems. Results may be subject to wide variation and can be biased to reflect the views of those making assumptions to support their estimates.

d. Uncertainty concerning the legal status of privatization contracts persists for utility systems located on DoD installations, particularly related to regulated utilities and utility franchises established by state utility commissions.

The General Counsel of the DoD issued a memorandum providing legal guidance to DoD installations, which stated each Department:

...must dispose of the utility system "using competitive procedures" notwithstanding state laws and regulations regarding who can own a utility system. Congress has not waived the sovereign immunity of the United States with respect to disposal. Any effort to dispose of the system in a non-competitive manner, when more than one entity expresses an interest in the conveyance, even if undertaken to voluntarily comply with state law, would violate the express terms of section 2688. (DoD (GC), 2000, p. 8)

The General Counsel's opinion is not binding in a court of law deciding the applicability of state regulatory authority over a private sector utility system located on a DoD installation. The General Counsel's opinion provides guidance and direction to DoD

activities only, not to state utility commissions. Legal challenges can be costly and result in significant delays in the privatizing of utility systems located on shore installations.

2. Recommendations

a. Facilities and Engineering Division (OPNAV N44) should work with NAVFAC to develop a revised utilities privatization implementation plan, which includes specific guidance on 'how' to privatize utility systems located on Navy installations.

NAVFAC and OPNAV N44 have the resources available to design and develop an implementation plan for utilities privatization that no single shore installation can amass. A single well-developed Navy-wide implementation plan (that provides specific guidance to the field) will allow individual installations to better leverage available resources. Installations can focus their scarce resources on executing a well-developed implementation plan, instead of designing one. SECNAV should request an extension to the timeline stipulated by DRID 49 for a period of time that accommodates development and implementation of a fully-developed plan for privatizing utility systems on Naval installations.

Privatizing utility systems is not similar to any recurring activity in the Navy; it is more than just a complicated variation of the acquisition process. It requires specialized skills and specialized training. Currently, installations are staffed with personnel that possess limited (or no) experience with privatizing utility systems. To compensate for this lack of experience, N44 and NAVFAC can promulgate a fully-developed implementation plan that educates and guides installations through the intricacies of this revolutionary program.

b. NAVFAC should direct all installations to use the same method of computing FMV for all utility systems considered for privatization.

By sanctioning a single method for determining a utility system's FMV, NAVFAC can reduce some of the variation that potentially exists in the economic analysis. Currently, installations can choose between several accepted methods to compute a utility system's FMV. This induces variation in the reported economic analysis; choosing between two alternate methods for computing FMV can result in one analysis that supports privatization and another analysis that does not. The use of only one accepted method for computing FMV will yield consistent results throughout the Navy.

c. NAVFAC should establish specific guidelines on how to estimate input factors used during the economic analyses of utility systems considered for privatization.

The application of estimated *should costs* required by DRID 49 to determine the economic feasibility for privatizing a DoN utility system varies from one installation to another. These estimated costs potentially impact the final analysis to such a great extent that tighter controls should be put in place to minimize their effect on the economic analysis. Specific guidance can minimize the variance in estimates and reduce the potential for inaccurate or misleading cost data unduly influencing the privatization decision for a given utility system.

d. DoD should request passage of Congressional legislation that specifically addresses the authority state utility commissions have over privatized utility systems located on military installations.

Congressional legislation can provide a legal basis for DoD's position to either abide by or ignore state utility commission regulations following the privatization of a utility system located on federal property. Without Congressional legislation, legal challenges will continue from both state utility commissions and private entities not allowed to compete for the right to provide utility service in a state with regulated utilities. Either case will result in expensive and time-consuming lawsuits that will delay full implementation of utilities privatization.

3. Areas for Further Research

This study of the ongoing process for implementing utilities privatization in DoD has generated a number of related issues that were not addressed in this thesis. The following issues may serve as possible topics for further study:

- What metrics are appropriate for measuring and determining the successful privatization of a utility system located on a military installation, monetary and non-monetary?
- How do actual savings compare to projected savings following the privatization of a DoD utility system?
- What form of benchmarking has been used to measure savings?

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. DEFENSE REFORM INITIATIVE DIRECTIVE 9



DEPUTY SECRETARY OF DEFENSE

1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010



10 DEC 1997

**MEMORANDUM FOR SECRETARIES OF THE MILITARY
DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF
DEFENSE
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES**

SUBJECT: Department of Defense Reform Initiative Directive #9 -- Privatizing Utility Systems

The Military Departments are directed to develop a plan for privatizing all of their utility systems (electric, water, waste water and natural gas) by January 1, 2000, except those needed for unique security reasons or when privatization is uneconomical. This plan shall include organizational requirements for conducting such privatization, and a timetable with internal benchmarks for measuring progress in achieving this goal in the interim years.

Furthermore, the Under Secretary of Defense for Acquisition & Technology is directed to develop uniform criteria for the Military Departments to apply in determining whether a facility is exempt from privatization due to economic or security considerations.

The Military Departments shall present their plans to the Defense Management Council no later than March 13, 1998.

John J. Hamre

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX B. DEFENSE REFORM INITIATIVE DIRECTIVE 49



DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010



23 DEC 1998

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Department of Defense Reform Initiative Directive #49 - Privatizing Utility Systems

As you know, Defense Reform Initiative Directive (DRID) #9 directed the Military Departments to develop plans for privatizing electric, water, waste water, and natural gas utility systems, and required the Under Secretary of Defense for Acquisition and Technology (USD(A&T)) to develop uniform criteria for the Military Departments to apply in determining security and economic exemptions from this directive. The purpose of this DRID is to reset the goal for this initiative, establish the approach to its management and oversight, and convey guidance for assessing exemptions, conducting the divestiture of utility assets using competitive procedures, and performing economic analyses of the transactions.

Since issuing DRID #9, both the number of utility systems available for consideration and the complexity of issues surrounding these transactions have multiplied. As a result the Military Departments should now revise their plans to accommodate award of privatization contracts for all utility systems no later than September 30, 2003 (except those exempted in accordance with the attached guidance). To ensure progress towards the new utility privatization goal, these new plans should also adhere to two interim milestones. The first requires the completion by September 30, 2000 of a determination for all systems of whether or not to pursue privatization. The second interim milestone requires all solicitations to be released no later than September 30, 2001.

The Military Departments shall submit revised plans for utility privatization to the USD(A&T) no later than December 23, 1998. These plans shall provide an inventory of all utility systems, including those proposed for exemption, as well as a management plan

that indicates the schedule on which each system will reach key milestones - synopses/Notice of Intent, study complete, solicitation, and contract award. The USD(A&T) will complete and submit to me an initial assessment of those plans no later than January 22, 1999.

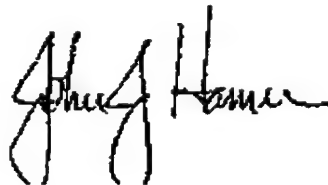
Thereafter, the Military Departments will submit quarterly reports to the USD(A&T) describing each system's progress through the milestones. The first will be due April 15, 1999 with data as of March 31, 1999. The reports should also address to the USD(A&T) issues identified during privatization studies conducted in the previous quarter. These issues should include proposals to improve efficiency and eliminate barriers to effective privatization.

Success in this initiative will require innovative business approaches. To foster one such innovation, I encourage the Military Departments to work with one another and the Defense Energy Support Center (DESC) to initiate during 1999 at least one joint, regional utility privatization plan. The purpose of this pilot will be to provide the Military Departments an opportunity to utilize DESC services while exploring the promise of some alternative approaches to conducting these divestitures.

The attached guidance governs the privatization of electric, water, waste water, and natural gas utility systems as directed by the DRI. It sets forth the criteria for exempting systems from the privatization program, for using competitive procedures, and for conducting the economic analyses. Utility privatization will be pursued at all major and minor installations worldwide not previously designated for closure by the Base Realignment and Closure Act. While some exemptions may be necessary, they should be rare and taken only under the authority of the Secretaries of the Military Departments. The use of competitive procedures, which already is required by statute (CICA and Section 2688), is reiterated in the guidance. The guidance establishes how the economic analyses should account for the costs of operations, maintenance, and system improvements that would be incurred by the Department if the systems were operated and maintained at accepted industry standards.

Finally, the USD(A&T) should work with the Military Departments to determine the necessity of legislative relief from two obstacles: the 10-year limitation on utility service contracts and the tax treatment of utility system conveyances.

While utility privatization presents several tough challenges it also offers great opportunities. I expect the Military Departments to work privatization hard, finding those business innovations that will garner the maximum benefit for the Department and the American taxpayer.

A handwritten signature in black ink, appearing to read "John J. Hamre". The signature is stylized with a large, looped initial "J" and a cursive "H".

John J. Hamre

Attachment

PRIVATIZATION OF DEFENSE UTILITY SYSTEMS

I. PURPOSE

Section 2688 of title 10, United States Code, provides to the Secretary of a Military Department authority to convey all Defense utility systems, including electric, water, waste water, and natural gas, as well as steam, hot and chilled water, and telecommunications systems. The Defense Reform Initiative (DRI) stated that the Department of Defense (DoD) would privatize all electric, water, wastewater, and natural gas utility systems, except where privatization is uneconomical or where unique security reasons require ownership by the Department. While the DRI did not specifically direct the privatization of steam, hot and chilled water, and telecommunications at this time, it does not prohibit such privatization. The DRI's objective is to get DoD out of the business of owning, managing, and operating utility systems by privatizing them. Defense Reform Initiative Directive (DRID) #9 required the Under Secretary of Defense (Acquisition and Technology) to establish guidance for the privatization of electric, water, waste water, and natural gas utility systems. This document provides that guidance.

II. SCOPE

A. Definitions

1. A "utility system" means any system for the generation and supply of electric power, for the treatment or supply of water, for the collection or treatment of wastewater, and for the supply of natural gas. For the purpose of this definition, supply shall include distribution. A utility system includes equipment, fixtures, structures, and other improvements utilized in connection with the systems described above, as well as the easements or rights-of-way associated with those systems. A utility system does not include any projects constructed or operated by the Army Corps of Engineers under its civil works authorities nor does it include any interest in real property other than an easement or right-of-way associated with the utility system.

2. "Secretary" refers to the Secretary of the Military Department that has jurisdiction over the utility system.

3. "Military Department" or "Department" refers to the Department that has jurisdiction over the utility system.

B. The Military Departments are authorized to convey a utility system to any municipal, private, regional, district or cooperative utility company or to any other entity under this authority in accordance with applicable state and local laws. In the case of overseas utility systems, privatization will comply with appropriate agreements and applicable host nation laws.

C. The privatization of utilities and utility systems is to be conducted at all installations, both in the United States and overseas, that have utility systems available to convey. All Active Duty, Reserve, and Guard installations, both major

and minor, not currently designated for closure under the Base Realignment and Closure (BRAC) Act, will be considered candidates for utility system privatization. BRAC closure constitutes privatization of the entire installation to include utility systems. All BRAC designated installation closures will be transferred/privatized in accordance with appropriate closure laws and agreements.

D. While 10 U.S.C. 2688 governs the privatization of the utility system, the acquisition of utility services, even when a part of the privatization, is governed by 40 U.S.C. 481 and FAR Part 41.

III. EXEMPTIONS FROM PRIVATIZATION

A. The DRI exempts from privatization those utility systems that would be uneconomical to privatize, or those for which unique security reasons exist not to privatize.

B. Unique Security Reasons

1. A utility system is exempt from the privatization requirement set out in DRID #9 when either the Secretary concerned or the Principal Staff Assistant for a Defense Agency certifies to the Under Secretary of Defense (Acquisition & Technology) that unique security reasons require that the United States own the system.

2. "Unique security reasons" are situations in which:

a) ownership of the utility system by a private utility or other entity would substantially impair the mission of the Department concerned; or

b) ownership of the utility system by a private utility or other entity would compromise classified operations or property

C. Privatization is Uneconomical

1. A utility system is exempt from the privatization requirement set out in DRID #9 when either the Secretary concerned or the Principal Staff Assistant for a Defense Agency certifies to the Under Secretary of Defense (Acquisition & Technology) that privatization is uneconomical.

2. Privatization may be considered "uneconomical" only when:

a) there is a demonstrated lack of market interest, as indicated by a lack of response from any utility company or other responsive and responsible entity to an announcement of the intention to privatize; or

b) the long-term cost to the Department as a result of privatization would be greater than the long-term benefits; or

c) the long-term cost to the Department for utility services provided by the utility system concerned will not be reduced.

IV. COMPETITIVE PROCEDURES

Competitive procedures will be used in conducting the privatization of utility systems. In advance of issuance of the solicitation, the Military Departments must determine whether there is market interest in acquiring the utility system. The Departments should synopsise in the Commerce Business Daily (normally by publishing a notice of intent) and other available public media. The synopses shall indicate that the Department is considering privatizing its utilities, state the type and location of those utilities, and request that interested parties communicate their interest to a specified point of contact within the Department concerned. The synopses' results will form the basis of the competition analysis necessary for the Department to determine the proper competition strategy.

If the installation resides in an area served by a franchised and regulated utility, that franchise holder shall not be considered the presumptive conveyee, nor shall another responsible and responsive utility or entity that expresses interest be excluded from the competition. State law and regulatory policy should be considered when determining the form of competition for franchised and regulated utilities. Where state law and regulatory policy specifically prohibits competition, a sole-source negotiation may be pursued after evaluating response to the synopses. The Military Department, however, may not rely on the assertions of the franchised or regulated utility in this regard. Rather, it must make an independent legal finding that the franchised or regulated utility is the only entity authorized to own and operate the utility system to be privatized.

A. The competitive procedures must ensure that the utility services resulting from privatization are sufficient to support installation missions in a reliable and resource efficient manner.

B. Military Departments should consider how different regulatory environments might affect the determination of rate structures for any utility service contracts entered into beyond the end of the initial utility service contract. Special consideration should be given when contracting with a utility or other entity that is not subject to price regulation or that is price self-regulated. The non- or self-regulated environment may present considerable barriers to ensuring the strength of the Department's negotiation position for the follow-on service contract. The Department shall contract in a manner that will mitigate the risk it bears in subsequent contracts. Some risk mitigation methods to consider include: contractually establishing a regulatory scheme in the initial conveyance/service contract, retaining actual land ownership, and conveying a lesser estate as considered appropriate by the Secretary and as authorized by Section 2688.

C. The solicitation shall require that if the utility system under consideration for privatization will continue in operation after conveyance, the recipient shall take all actions necessary to ensure that the system complies with all applicable legal and regulatory requirements. If the utility system under consideration for privatization will instead be replaced, the new system must also comply with the above requirements.

D. The solicitation shall contain a provision plainly stating that the Department cannot guarantee that it will enter into a contract at the end of the solicitation process. The provision must express that the success of the solicitation is contingent upon the ability to certify to Congress that the long-term economic benefit of the conveyance

exceeds the long-term economic costs, and that the conveyance will reduce the long-term costs to the Department concerned for utility services provided.

E. The Military Departments shall conduct all utility privatizations consistent with all other applicable legal and regulatory requirements, including any environmental analysis requirements.

F. After determining that privatization is uneconomical or is precluded by security considerations, efforts should be made to award an Energy Savings Performance Contract (ESPC), to competitively source the operation of those systems, or pursue other cost savings measures.

V. CONGRESSIONAL NOTIFICATION REQUIREMENTS

Section 2688 of title 10 requires that the Secretary concerned submit to the Defense Committees of Congress an analysis that demonstrates that the long-term economic benefit of the conveyance exceeds the long-term economic cost, and that the conveyance will reduce the long-term costs to the Department concerned for utility services provided by the subject utility system. The Secretary concerned shall not proceed with conveyance of the utility system until 21 days have elapsed after the committees receive the economic analysis.

A. The economic analysis must take into account the costs for operation, maintenance, and system improvements that would be incurred by the Department if the systems were operated and maintained in accordance with accepted industry practice and all applicable legal and regulatory requirements. The direct proceeds (if any) from a conveyance and the future cost of utility services to be obtained if the conveyance is made must also be considered.

B. Methodological Assumptions and Parameters

1. The basic parameters involved in the economic analysis, such as economic life and period of analysis, are those specified in DOD Instruction 7041.3. Other parameters shall also be included in the analysis, if necessary. All parameters should be clearly explained and justified.

2. For the purposes of the economic analysis, "long-term" refers to the economic life of the utility system under consideration for privatization. (Note: Economic life of the utility system under consideration for conveyance need not be the same as the life of the contract for utility services.)

3. Life-cycle cost analysis shall be treated/conducted as specified in OMB Circular A-94.

a) Should a general inflation assumption be necessary, the inflation rate specified in section 7 of Circular A-94 is recommended. This shall be the rate used in converting costs and benefits from real to nominal values, and vice versa.

b) The discount factor utilized in the economic analysis shall be as described in section 8 of Circular A-94 and as specified in Appendix C of the circular. While the real discount rate is usually preferable, if future benefits and costs are given in

nominal terms, then the nominal rate shall be used. Real and nominal values may not be combined in the same analysis.

4. Since the actual costs that the Department concerned incurs in operating and maintaining its utility systems may reflect inadequate maintenance and condition, the economic analysis must include the costs that should be incurred if the systems were operated and maintained in accordance with all applicable legal and regulatory requirements. The object of this approach is to bring a degree of parity to the costs reflected in the proposals and the economic baseline survey developed by the Department.

VI. FINANCIAL MANAGEMENT

A. Section 2688 of title 10 requires the recipient utility or entity to pay fair market value, as determined by the Secretary concerned, for the utility system. This consideration for the conveyance may be accepted in the form of a lump sum payment or a reduction in charges for utility services provided by the utility being conveyed to the military installation at which the system is located. The treatment of a lump sum payment received in consideration for the sale of a utility system should be handled in accordance with procedures described in the Financial Management Regulations (FMR).

B. If the Secretary concerned elects to receive consideration through a reduction in charges for utility services provided to the military installation, the time period for reduction in charges for services provided by the privatized utility shall not be longer than the life of the contract for utility services.

C. When structuring an arrangement for privatization of a utility system, the Secretary concerned may require additional terms and conditions as a part of the sale of the utility system as he or she considers appropriate to protect the interests of the United States.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

Atlantic Division Naval Facilities Engineering Command, *Request for Proposal Number N62470-00-R-3602* (RFP), 29 October 1992.

Branch Head, Utilities Engineering and Acquisitions, EFD Atlantic Division, Naval Facilities Engineering Command, Telephone Interviews, February – May 2000.

Executive Vice President, Catalyst Financial Group, Inc. (CFG), Telephone Interview, May 2000.

Commander, Naval Facilities Engineering Command (NAVFAC Code (00), Prepared Testimony; *Real Property Maintenance*, House Armed Services Committee Military Readiness Subcommittee, 1 March 2000.

Committee on Shore Installation Readiness and Management, Naval Studies Board, National Research Council, and Commission on Physical Sciences, Mathematics, and Applications, *Recapitalizing the Navy; A Strategy for Managing the Infrastructure*, National Academy Press, Washington, D.C., 1998.

Competitive Sourcing & Acquisition Advisor, Naval Facilities Engineering Command, Interview, 1 May 2000.

Comptroller, Naval Facilities Engineering Command, Letter to ASN(F&C); *Advisory and Assistance Services Authority*, 24 March 2000.

Department of Defense, *Defense Reform Initiative Directive #9* (DRID 9), 10 December 1997.

Department of Defense, *Defense Reform Initiative Directive #49* (DRID 49), 23 December 1998.

Department of Defense General Counsel (DoD (GC)), Memorandum; *The Role of State Laws and Regulations in Utility Privatization*, 24 Feb 2000.

Department of Defense, *Instruction Number 7041.3; Economic Analysis for Decisionmaking*, 7 Nov 1995

Department of the Army, Concepts Analysis Agency (CAA), *Report on Utilities Privatization*, Aug 1998

Department of the Navy, *Utilities Privatization Quarterly Report* (NUPR), April 2000.

Department of the Navy (DoN), *Energy Website*,
[<http://energy.navy.mil/>], 2000.

Deputy Assistant Secretary of the Navy for Installations and Facilities (DASN (I&F)),
Memorandum; Request for an Economic Exemption to Privatizing Utilities at PWC Norfolk, 1 March 2000.

Deputy Director for Energy and Utilities Privatization, Office of the Secretary of Defense, Briefing; *Overview of DoD Utilities Privatization Program*, Society of American Military Engineers Conference, 2 May 2000

Director, Electrical Utilities and Controls Division, Energy Utilities Department, Naval Facilities Engineering Service Center, Telephone Interviews, February – April 2000.

GDS Associates, Inc (GDS), Transcripts from DoD Industry Forum; *Privatization of Utility Systems*, Fort Belvoir, VA., 4 April 2000.

Hage, Jerald, *Theories of Organizations; Form, Process, and Transformation*, John Wiley & Sons, Canada, 1980.

Industrial College of the Armed Forces (ICAF), Proceedings from Spring Symposium 1996, *Privatizing Federal Government Operations*, TeamMakers, 1996

KPMG Consulting (KPMG), *Business Case Analysis for the Norfolk Naval Shipyard Refuse Derived Fuel Power Plant*, 1 Feb 1997.

Naval Facilities Engineering Command (NAVFAC), website,
[<http://www.ncts.navy.mil/homepages/navfac/>], 2000.

Naval Facilities Engineering Service Center (NFESC), *Energy and Utilities Website*,
[<http://energy.nfesc.navy.mil/index.html>], 2000.

Office of the Secretary of Defense (OSD), Website, Washington, DC
[<http://www.defenselink.mil/pubs/almanac/osd.html>], 2000.

President's Office for Management and Budget, *OMB Circular Number A-94; Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, 29 Oct 1992.

Privatization Center, Reason Public Policy Institute, *PRIVATIZATION.ORG Website*,
[<http://www.privatization.org/>], 2000.

Public Works Center Norfolk, *Utilities Privatization Submittal; Electrical Distribution Systems Hampton Roads Sites*, May 6, 1999.

Public Works / Utilities Head, Naval Facilities Engineering Command, Telephone Interviews, April 2000.

Roberts, Nancy C. and King, Paula J. (R&K), *Transforming Public Policy; Dynamics of Policy Entrepreneurship and Innovation*, Jossey-Bass Publishers, San Francisco, 1996.

Section Head, Utilities Engineering, EFD Atlantic Division, Naval Facilities Engineering Command, Telephone Interviews, Feb – May 2000.

Southwest Division Naval Facilities Engineering Command, Website, [<http://www.efdswnavfac.navy.mil/home.htm>], 2000.

U. S. Congress, Congressional Hearing Report Summary (CRS); *Oversight Hearing on Military Housing Privatization Initiatives and Utility Privatization*, House Armed Services Committee Military Readiness Subcommittee, 11 Mar 1999.

Utilities Manager, Norfolk Naval Shipyard, Telephone Interviews, March – May 2000.

Utilities Privatization Team Member, Southwest Division Naval Facilities Engineering Command (NAVFAC EFD (SW)), Telephone Interviews, February – May 2000.

Utility Director, PWC Norfolk, Telephone Interviews, February – May 2000.

Zaltman, G., Duncan, R., and Holbek, J., *Innovations and Organizations*, Wiley, New York, 1973.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center 2
8725 John J. Kingman Rd., STE 0944
Ft. Belvoir, Virginia 22060-6218

2. Dudley Knox Library 2
Naval Postgraduate School
411 Dyer Rd.
Monterey, California 93943-5101

3. RADM Donald R. Eaton (Ret) SM/ET 1
Naval Postgraduate School
Monterey, CA 93943

4. Professor Keith F. Snider SM/SK 1
Naval Postgraduate School
Monterey, CA 93943

5. Professor Cary Simon SM/SN..... 1
Naval Postgraduate School
Monterey, CA 93943

6. Professor Bruce Pawlowski SM/PA..... 1
Naval Postgraduate School
Monterey, CA 93943

7. LCDR John Korka..... 1
Chief of Naval Operations - Logistics (OPNAV N44)
Room NC1-6
2000 Navy, Pentagon
Washington, DC 20350-2000

8. Public Works / Utilities Department Head..... 1
Naval Facilities Engineering Command
Washington Navy Yard
1322 Patterson Avenue SE Suite 1000
Washington, DC 20374-5065

9. CDR Marcus J. Cromartie 2
424 Hannon Ave
Monterey, CA 93943